EXTENSION

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THE FARM AND FARM HOME MAGAZINE September, 1961

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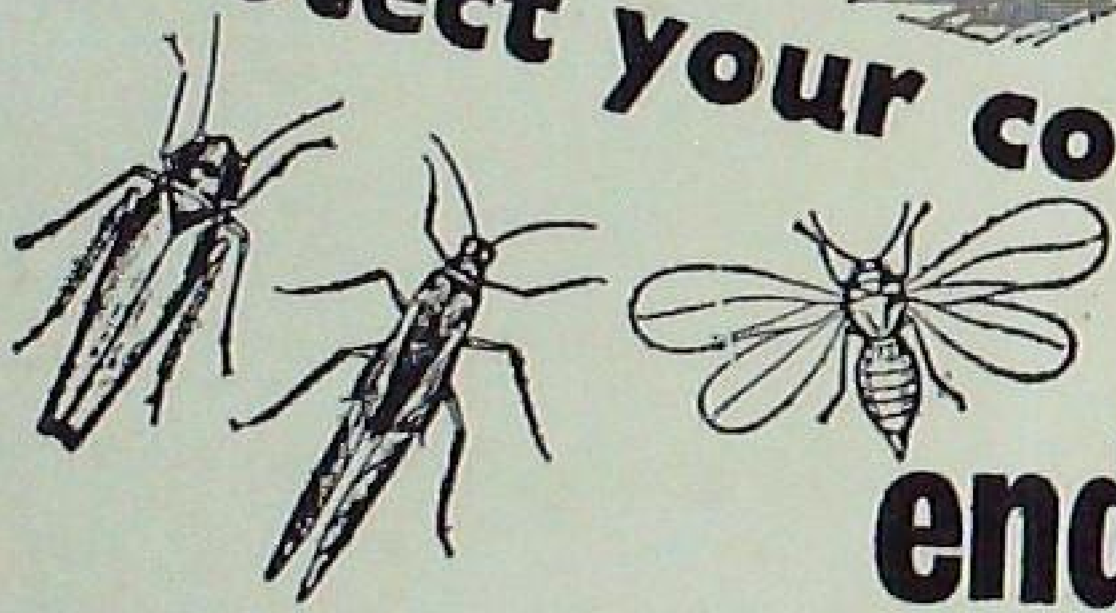

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THE WOMAN AND THE HOME

THE PICTURE ON THE COVER

White walls, brightly washed with lime and covered with colourful drawings, clothes hung on the cloth rack, clean-swept floors—these are some of the things that can make our rural homes livelier and brighter, making the housewife's work seem lighter and living better.

—Photo by Rajinder Paul

EXTENSION

THE FARM AND FARM HOME MAGAZINE

Vol. 2 September, 1961 No. 3

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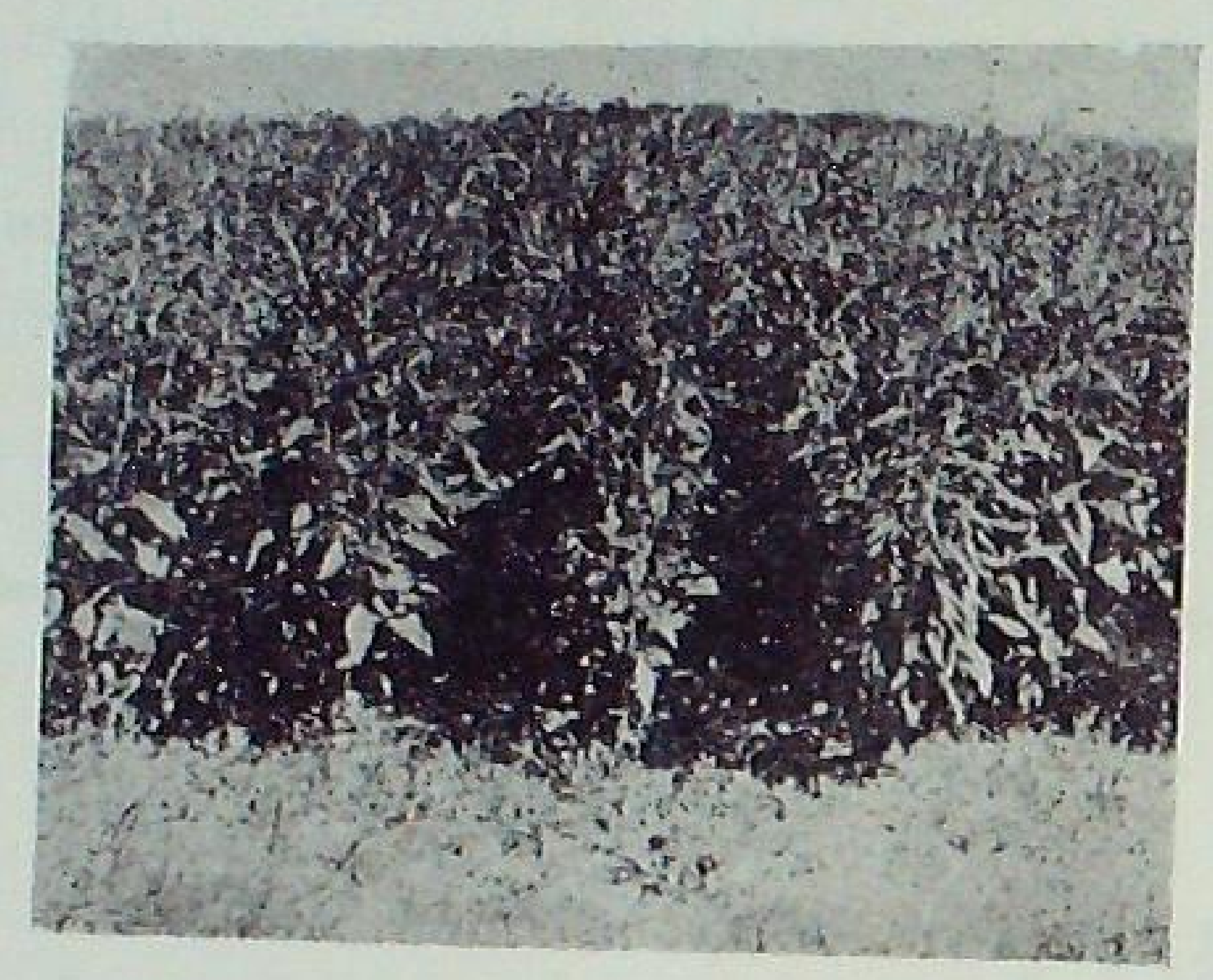
Surely You Can Grow a Better **SESAME** Crop



By DHARAMPAL SINGH

SESAME, also known as *til* or gingelly, though is our oldest oilseed crop, is still giving us a low acre-yield—average being 185 pounds. Sudan gets an average of 881, and China 513 pounds to the acre.

We grow sesame in most of the States, the major sesame-growing ones being Rajasthan, Uttar Pradesh, Madhya Pradesh, Gujarat, Andhra Pradesh and Madras.

It is certainly possible to take the per-acre yields up if farmers adopt practices which research has shown to be good for the purpose.

WHERE AND WHEN TO GROW SESAME

You can grow sesame in the plains and at elevations up to 4,000 feet. In peninsular India, they grow it in more than one season in the year. You can grow it in the *kharif* if your rainfall is not less than 20 inches, and in the *rabi* with irrigations.

Continuous rain harms the sesame crop. Cloudy weather, rain or storm at he flowering time often make for poor yield .

SOIL

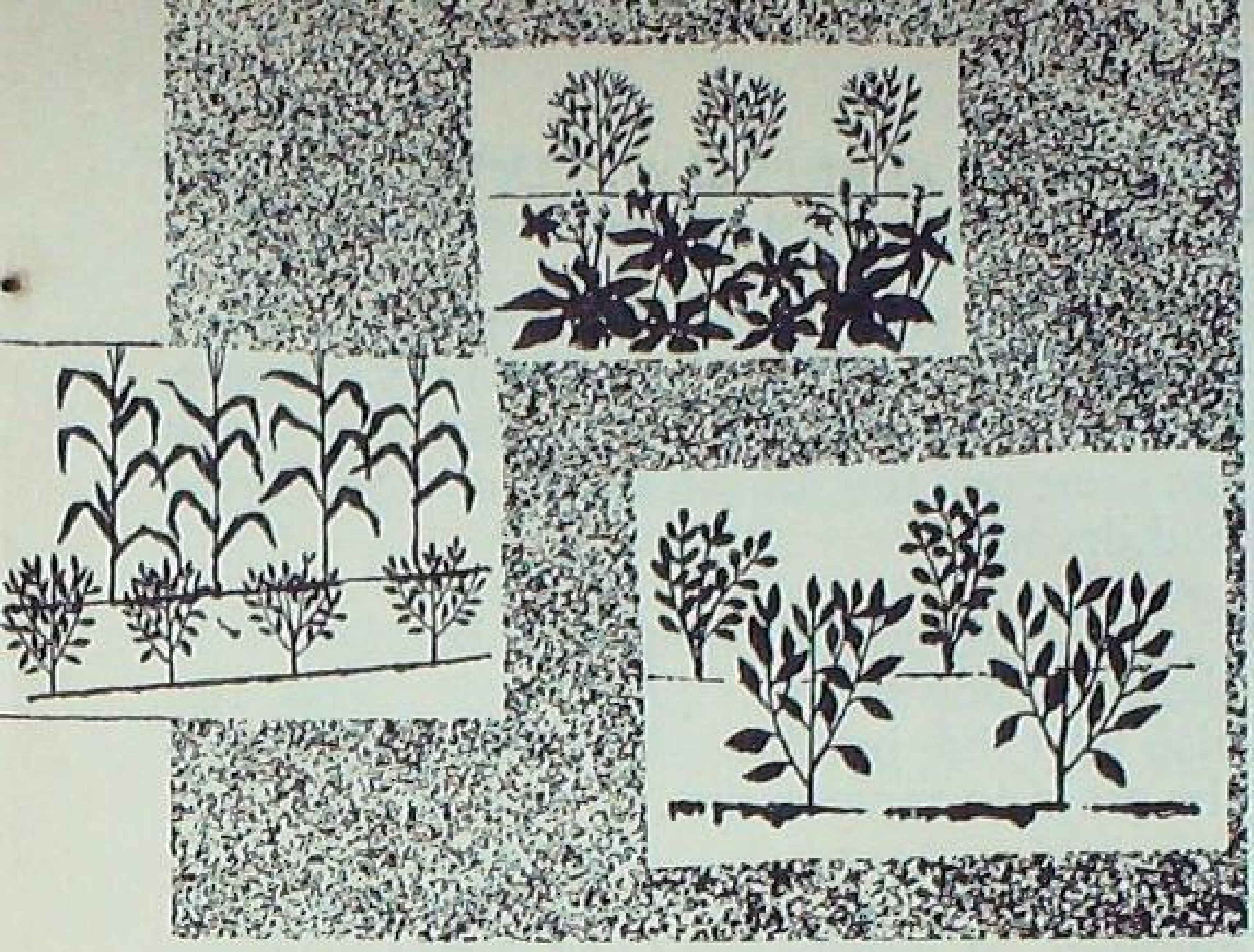
Sesame likes a light sandy loam with enough moisture in it, the best. However, you can grow it in other soils too, if they are well-drained. Avoid very sandy or alkaline soils for sesame.

MIXTURES

You can grow sesame as a pure or as a mixed crop. Mostly, cotton or cereals or pulses of the locality are the crops with which it is mixed.

Sesame is also grown mixed with *jowar*, *arhar*, *bajra*, maize, groundnut, black gram and castor.

Sesame is an exhausting crop, and when it is grown before a grain crop, the latter should be well-manured.



well, this will not do. You will have to manure it too. You can apply 25 pounds of nitrogen to an acre of the crop to get better yields. You can apply enough cattle manure to supply this amount of nitrogen to the crop.

VARIETIES

There are several varieties of sesame you can choose from.

However, remember : the variety which is to be grown in one season gives poor results if grown in another. Similarly, a variety giving good results in one area, may behave poorly when grown in another area.

Even in the same area, the sesame variety suitable for one type of soil may not turn out good for another type of soil.

In each state, there are improved varieties of sesame available for farmers to grow and get better yields from.

The following are some of the best varieties :

Uttar Pradesh : *T 10* for sowing in June-July and harvesting in August-September. Seed is white. Average yield—460 pounds to an acre. It is an early maturing variety (80 to 90 days) suitable for the alluvial area.

Punjab : *T.S.12, T.S.34.* These are white-coloured and are for sowing in June-July and harvesting in September. Yields, on an average, 454 pounds per acre.

Gujarat and Maharashtra: *T.85, N 58-2, N.71-17, N.79-3, N.106-5, N.128* are for *kharif* and *N.8* for *rabi*. The last three are good for the Nagpur area.

Madras : *T.M.V.1.* is good for raising as a rainfed crop, but comes up well in all seasons. *T.M.V.2* is suitable for the cold weather and *T.M.V.3* is for sowing in summer as an irrigated crop.

West Bengal : *B. 14* and *B.9*—both are high-yielding *kharif* varieties.

SOWING TIME

You should not miss the correct sowing time of your area for sesame. If you sow early, there will be more of stem and leaf growth, but poor fruiting. If you sow late, both growth and fruiting will suffer.

PREPARING THE LAND

Work the soil to a fine tilth. Clean the field of weeds, and level when necessary.

For *kharif* sowing, plough with a soil-turning plough in April-May. When you receive rains, give two or three ploughings with a *desi* plough. Harrow the field to control weeds.

In Gujarat, harrow the land twice or thrice. In Andhra Pradesh, give two or three ploughings and three or four harrowings, depending upon the soil type. Heavier soils need more ploughings.

In Madras, four ploughings with a soil turning plough and six to eight with a *desi* plough are advised. If there are clods (in wetlands and garden lands), break them with a mallet or disc harrow.

If you are growing sesame as a mixed crop, prepare the land according to the needs of the major crop.

MANURING

Normally, farmers grow sesame in poor soils, and don't manure the crop. It is grown on what is left of the manure applied to the previous crop. But if you want sesame to yield

SOWING

As the seed is small, mix it with dry earth, sand or manure before sowing. This will help a uniform distribution.

Use a seed-rate of four to six pounds per acre. For a mixed crop, the seed-rate will depend upon the ratio of the mixture.

Sow in lines, either behind a plough or with a drill. This will help easier interculture.

Normally. it is enough to give 1½ feet space between lines and 6 inches between plants, as in Uttar Pradesh. In Madras, a spacing of 9 inches by 9 inches for the rainfed crop and 12 inches by 12 inches for the irrigated crop is a good spacing to follow.

INTERCULTURE

Thin the crop 15 days after sowing, when plants are three to four inches high. Follow with another thinning ten days later. Intercultivate with a blade hoe or cultivator if the crop is sown in lines. If not, you will have to use the hand hoe. Give a second intercultivation 15 days later.

Do not delay the thinnings and weedings, if you want a good crop. Also remember that two weedings and two hoeings are very necessary.

IRRIGATION

If you are raising an irrigated crop, give the first irrigation just after sowing. This will help the seed germinate well. Give the second irrigation when plants are six inches high, and better just after the weeding and hoeing. This will help plants grow well and flower well. The remaining irrigations can follow once in 15 to 20 days. An irrigation is very important for the crop when flowering is just finished, and fruits start developing.

HARVESTING

In 80 to 145 days, depending upon the variety grown, the crop will be ready for harvest. Cut the plants as soon as the stems and leaves show a slight yellow colour, and the pods also turn yellow. Delay will only make the pods burst and scatter the seeds.

When you harvest the crop at this stage, some of the pods may not be fully mature. Hence, tie the plants into bundles and stack the same on the threshing floor for curing and drying.

For threshing, hold the bundles with the pods down, and shake well. You can also beat the bundles with a stick. Winnow the grain to remove dirt.

Dry the seed well and store in good gunnies. A poorly dried and stored seed will easily get attacked by the rice moth and the red floor beetle, and also the almond moth. The first two damage the seed badly.

Keep sesame meant for seed in air-tight tins or bins. Cover with a layer of ash before storage.

DISEASES

Blight : Common in Assam and Uttar Pradesh, this disease sometimes causes heavy damage to the crop. Irregular brown spots appear on leaves, which become bigger as the disease advances. In a bad case, the whole leaf is destroyed.

A sesame plant in flower

To control the disease, use 0.32 per cent 'Perenox.'

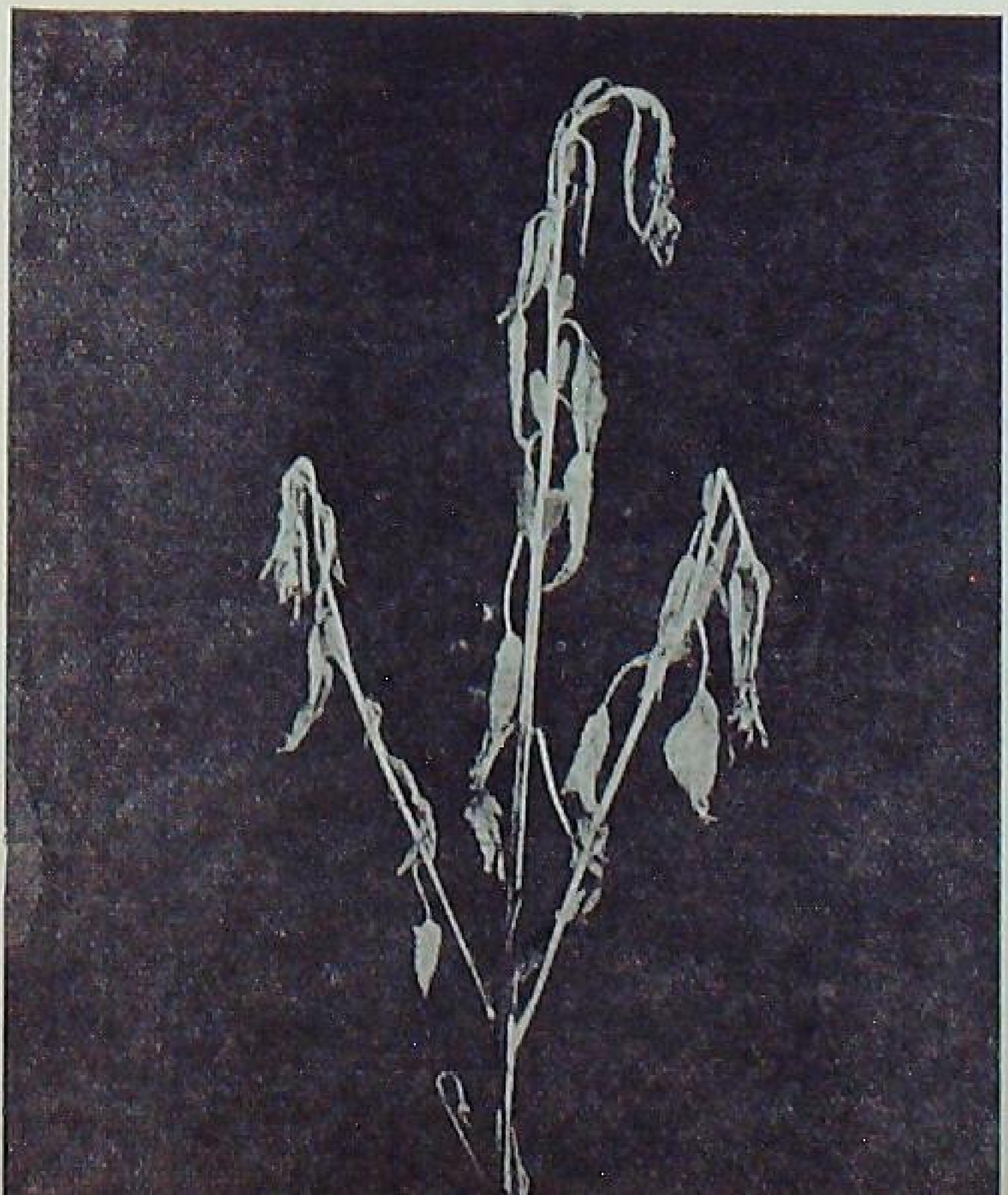
There is another kind of blight seen in Rajasthan, Madhya Pradesh and Gujarat. In this case, water-soaked spots are seen on the leaf, which become bigger later and kill the leaf. Such spots may also appear on the stem and branches, when they turn brown and then black. Affected branches produce poorly-formed pods. Seeds get shrivelled, and turn brown when the disease is severe.

For control, apply Bordeaux mixture (5-5-50) at the seedling stage. Clean cultivation and following a crop rotation will also help keep off the disease.

Stem anthracnose : The stem gets dull or dirty green when attacked and later turns brown or black. Leaves on the infected side of the stem become pale and die off. The branches show similar symptoms soon on the stem. Affected plants may produce a few pods on the healthy side, but the plants die before pods mature.

The disease is serious in Uttar Pradesh. No control measures are known. An early-sown crop sometimes escapes the disease.

When the stem is discoloured and the black lesions are seen all over, it is stem anthracnose



Wilt : The disease causes serious damage in Uttar Pradesh and Rajasthan.

Top leaves turn yellow and dry up. Later, however, bottom leaves also wilt and die. In severe cases, the plant loses all leaves, and dries up. If wilt-affected plants are pulled out, roots are seen rotted. Plants get partially wilted when the disease attacks at a later stage of the crop. In such cases, pods may be formed, but seeds will be found shrivelled.

Phyllody : The most dangerous of all sesame diseases, it is found all over the country. Sometimes 90 per cent of the crop is lost due to the disease.

The disease makes the flowers deformed to look like leaves. The top of the plant will also look like a 'bunchy top ;' there will be an excessive branching.

Where the attack is mild, pods and seeds are formed. Only when the disease is severe, will the plants produce abnormal pods, and normal seeds are not formed.

No control measures are known. Late sowing in Uttar Pradesh and early sowing in Madras have been found to reduce the disease attack to some extent.

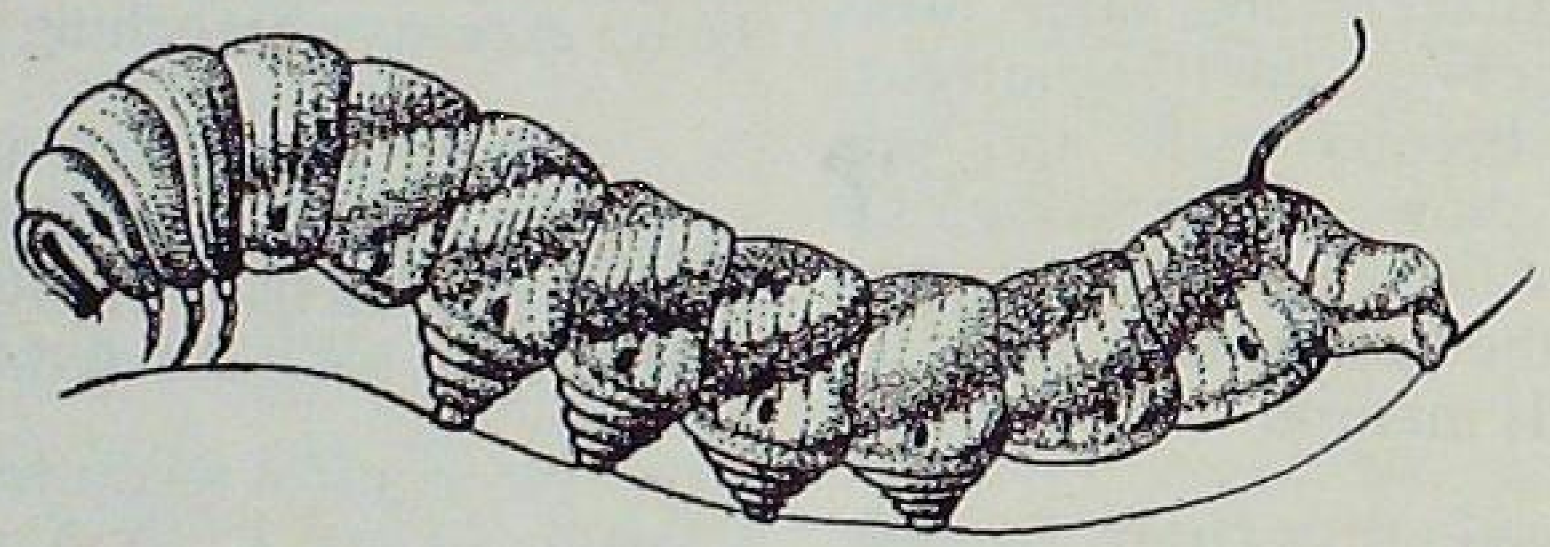
In case of phyllody, flowers get deformed and the plant shows 'bunchy top'

Spinx Caterpillar : Found all over India, this yellowish pale caterpillar feeds on leaves and pods. When fully grown, it is green in colour with yellow streaks on its body. At the tail end is a curved horn.

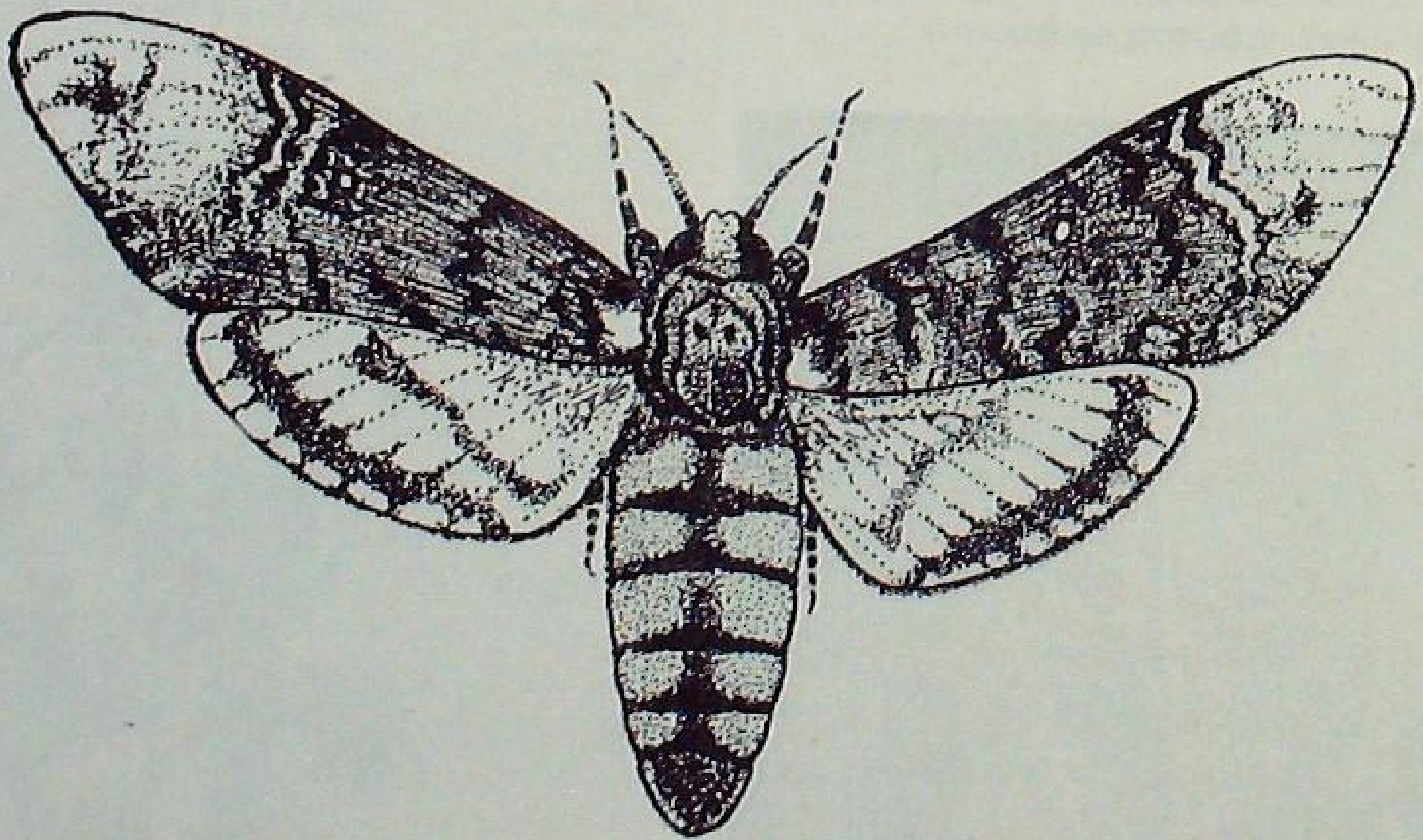
For control, plough the land deep after sesame is harvested. The insect pupating in the soil will be exposed to the sun and get killed.

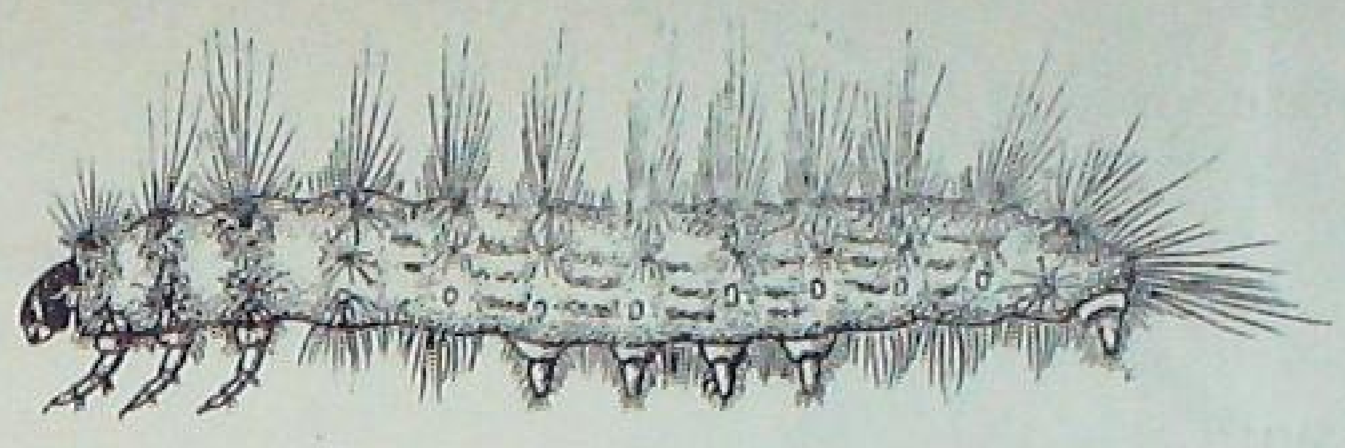
When there is severe attack, dust the crop with sodium fluosilicate (one part mixed with six parts of ash) or with 5 per cent BHC or DDT dust, or spray the crop with 0.25 per cent BHC or DDT suspension.

Spinx caterpillar...



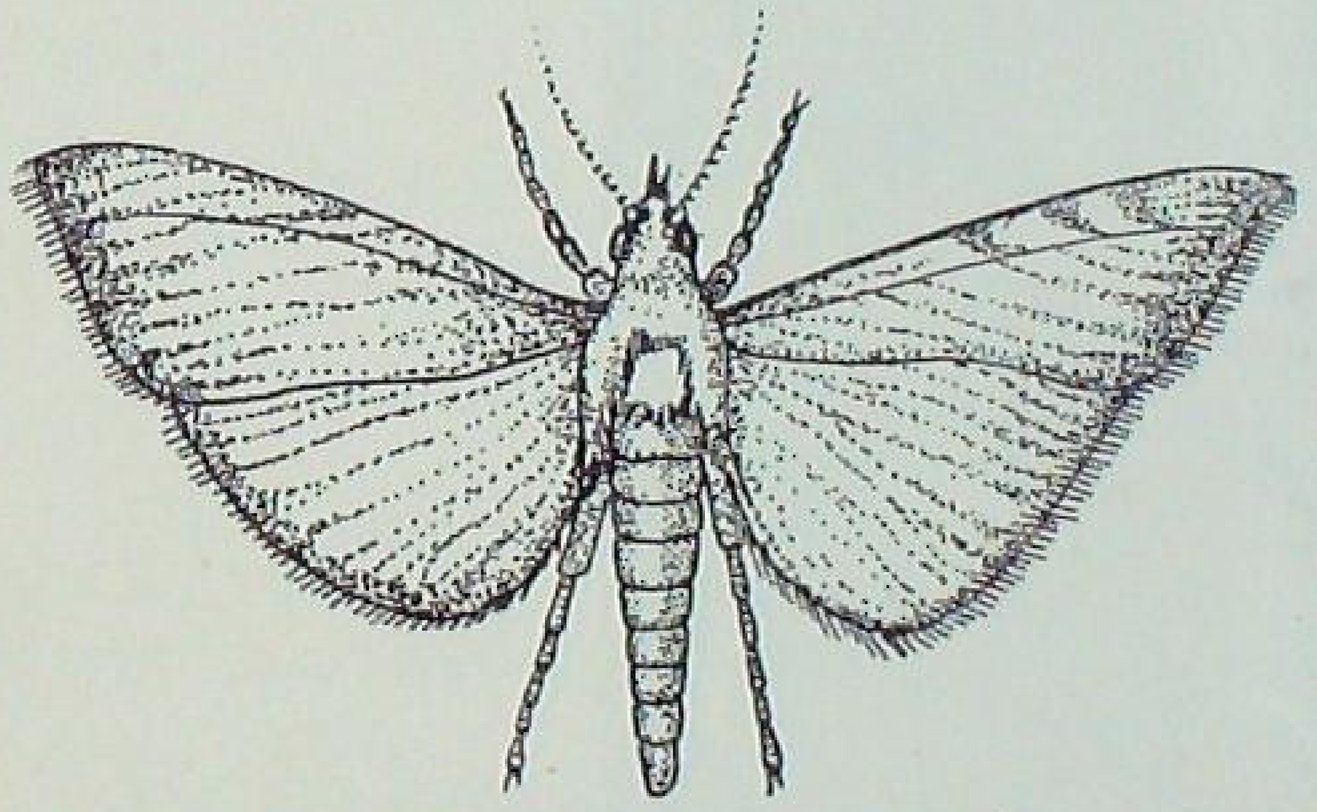
.. and moth





Bihar hairy caterpillar...

...and moth



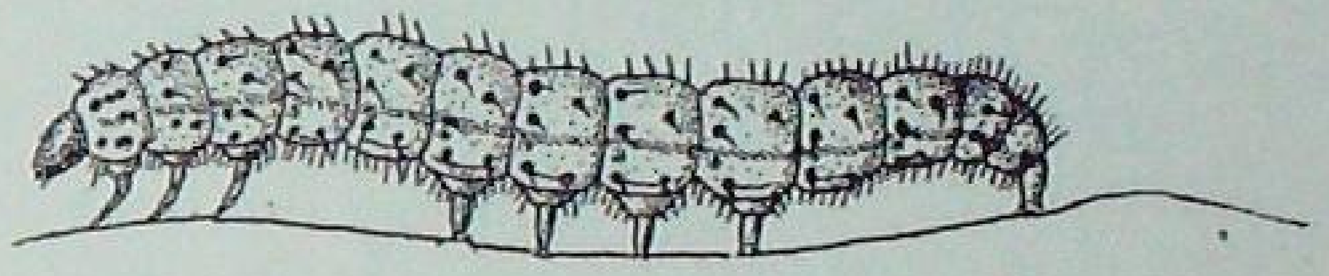
Bihar Hairy Caterpillar : Found attacking sesame in West Bengal and Bihar, it is hairy, black at the body tips. It sometimes seriously damages the crop.

Dust with 5 per cent BHC or 10 per cent DDT dust.

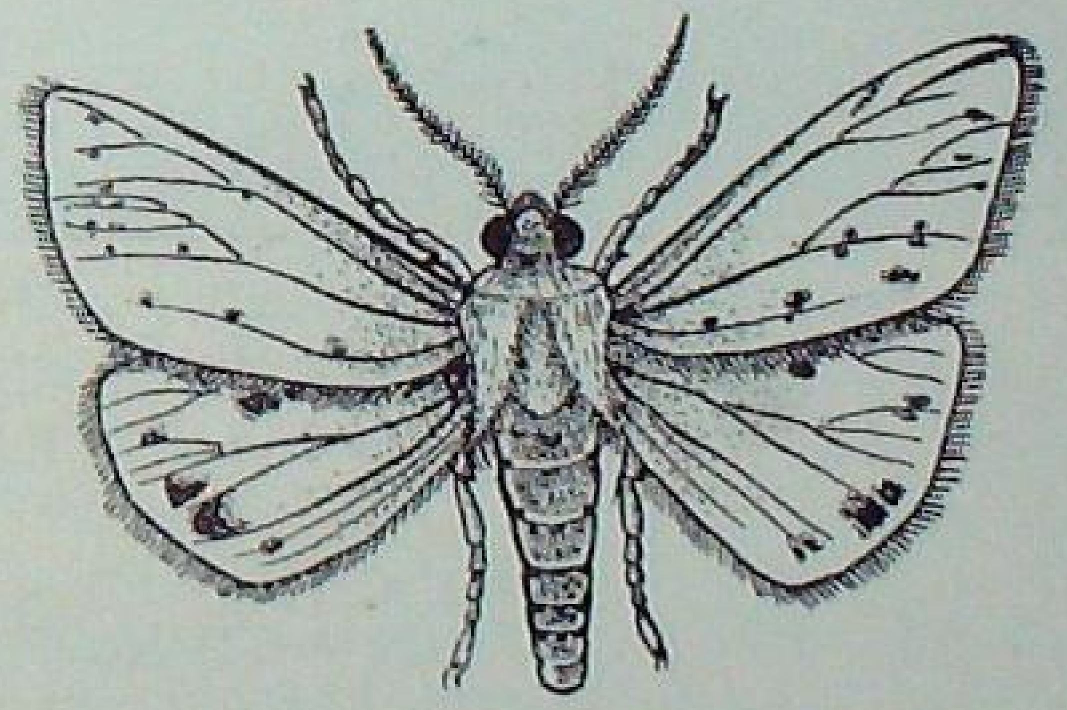
Another hairy caterpillar, like this one, is found to attack sesame in Gujarat. It is a black caterpillar with hair all over its body. To control this caterpillar, dust the plants with sodium fluosilicate (1:8).

Leaf and Pod Caterpillar : It is found all over India and is particularly serious in Bihar. Dust BHC 5 per cent at 10 pounds per acre on the young crop. In Andhra Pradesh, they use 0.16 per cent concentration of DDT with effect.

Leaf and pod caterpillar...



...and moth



Gall Fly : This mosquitoe-like fly does great damage in south India.

Collect and destroy all affected plants.

WHY YOU SHOULD PLANT SUGARCANE IN AUTUMN

AN AUTUMN-PLANTED CROP IS ALWAYS BETTER THAN A SPRING PLANTED ONE FOR MORE THAN ONE REASON

MORE sugarcane farmers in the North today are shifting their planting time from spring to autumn; instead of January-March, they now prefer, September-October-November. Because, they know that by planting in autumn, they get more than one benefit —early maturity, better quality cane and more yield. Since the crop matures earlier, it can be crushed early and they can earn more from *gur*.

When they plant sugarcane in September-November, the sugarcane gets the best of both the organic and inorganic manures that they apply. This is because the manures decompose in the soil earlier as there is sufficient moisture in the soil then. Due to the

same reason the setts they sow in autumn give better and earlier germination.

Planted in autumn, the canes grow better and, therefore, get strong enough to stand the summer heat. The crop is also able to escape the borer attack.

The autumn-planted crop responds better to interculturing than a spring-planted one. Also, ratoons from the autumn-planted crop give better results than those raised from a spring-planted one.

Hence, wherever possible, plant sugarcane in September-October-November.

For autumn planting, you need not miss any one of your *rabi* crop. You can grow a row of mustard or pea in-between two rows of autumn-planted cane.

To get better results with autumn planting :

Plant your crop in time. Late planting will lead to a poor germination.

Grow mid-seasonal or late varieties.

For autumn planting, make flat beds. This will enable you to grow catch crops in-between sugarcane rows.

Get the land into a good condition. For this, give the field about eight irrigations after *rabi* crop has been harvested and plough it deep with a soil-inverting plough. It will help in keeping down weeds, insect pests and diseases, and will also aerate the soil.

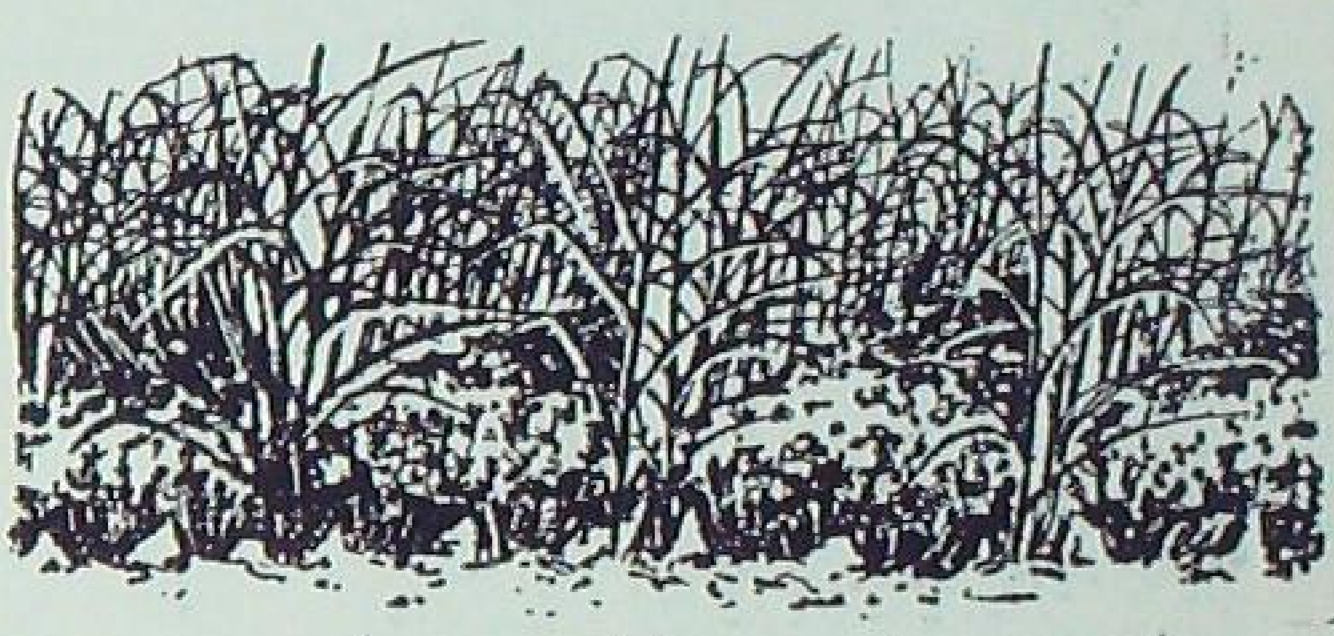
Usually a green manure crop like sannhemp, *dhaincha* or any legume is sown in the month of May or early June.

A phosphate fertilizer is also applied to the green manure crop at its sowing time. After 60 to 75 days, the crop gets ready for turning in. Allow the crop to rot for about a month.

For sowing, select healthy and disease-free seed from January-February planted crop. Better have a separate nursery for growing the seed cane.

Cut the cane into three-budded setts, taking care to see that these setts are healthy, thick and damage-free. Treat the setts with a suitable pesticide before planting. You will need about 40 to 50 maunds or 8,000 to 10,000 setts for an acre.

Plant the setts $2\frac{1}{2}$ feet to 3 feet apart, behind a plough.



Grow a catch crop in between the cane rows

In addition to the green manure, apply compost or farmyard manure in a quantity that is recommended for your area. Mix it well by ploughing and cross-ploughing the field a number of times.

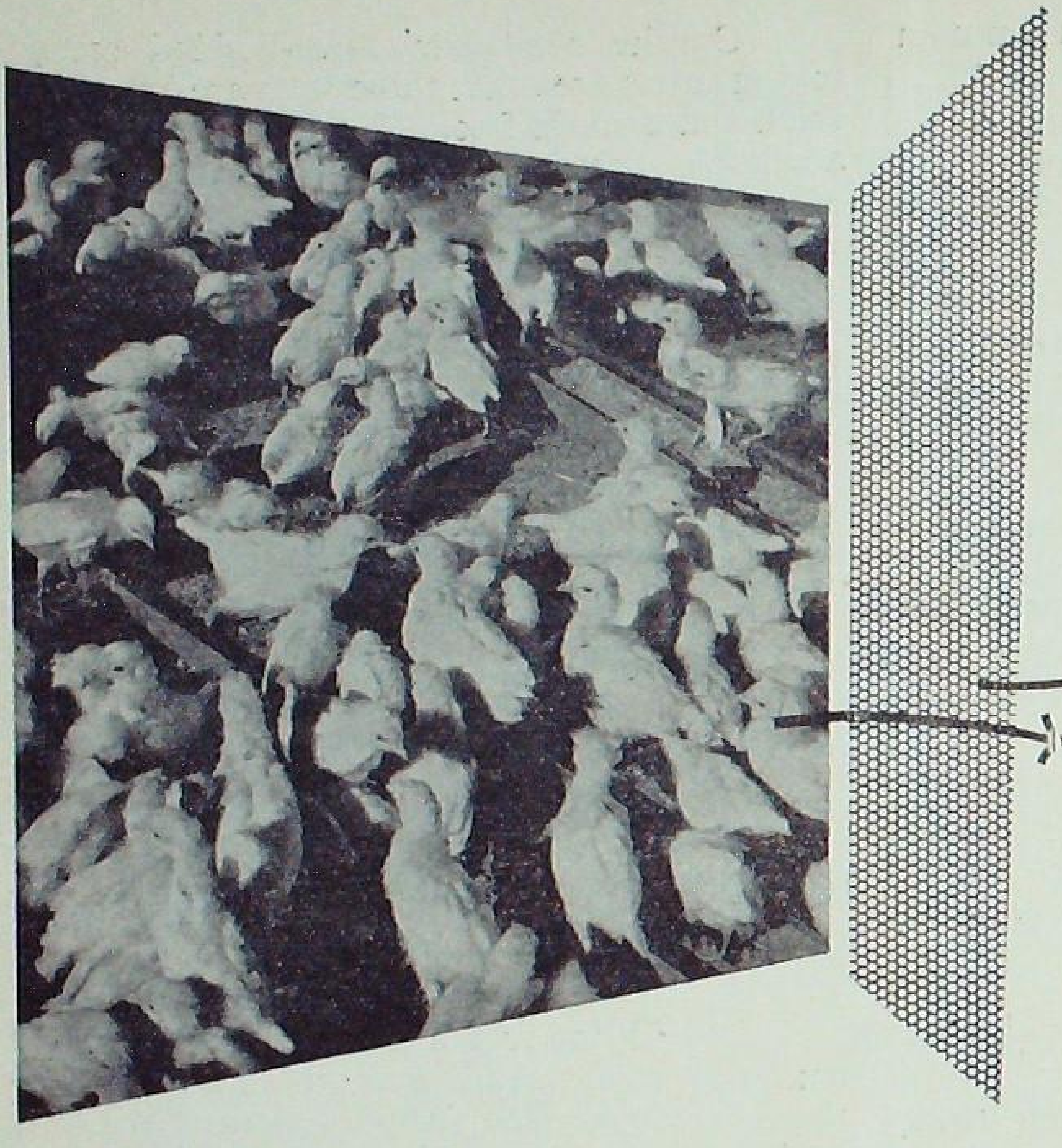
Apply a dressing of ammonium sulphate or any other nitrogenous fertilizer mixed with oilcake and superphosphate at planting time. To protect the crop against termites or other soil-inhabiting pests, better apply 'Aldrin' or 'Chlordane.'

After planting of setts or after they have sprouted, sow the catch crops you may like to grow. Irrigate and hoe the field at regular intervals.

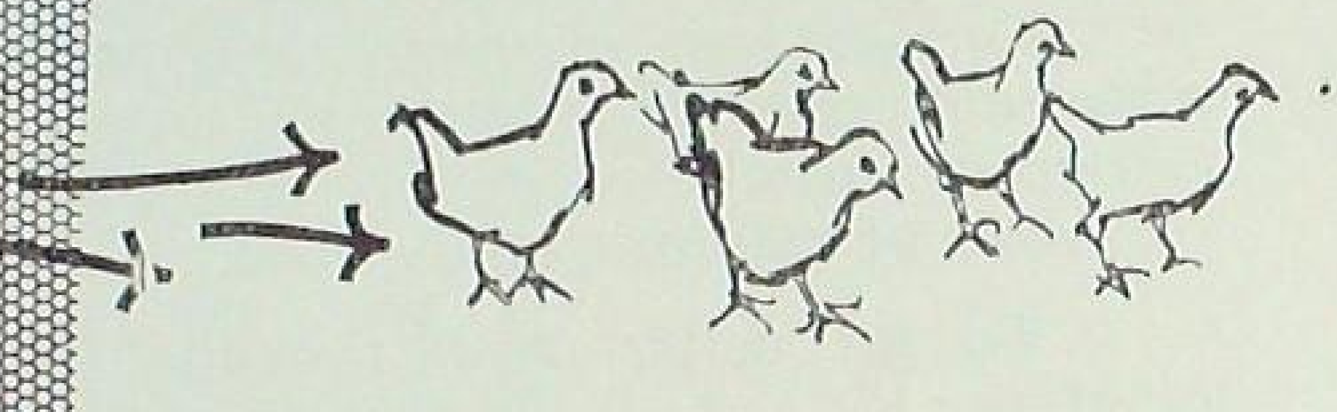
During January-March, after the catch crops are harvested, top-dress the crop with organic or inorganic fertilizers.

Follow up with irrigation and thereafter hoeing or other intercultural practices like earthing-up and top-dressing at proper times as you do in the case of spring crop.

Autumn planting will want nothing special from you, but will give more returns.



DON'T KEEP THOSE EXTRA COCKERELS



Keeping more cockerels than you need is a costly practice.

By S.G. IYER

HALF the number of chicks that you hatch are males. Unless you want to keep them for selling to other poultry-keepers as breeding cockerels, it is not wise to keep them.

If you keep these cockerels on your farm, especially if you are producing table eggs for sale, they will occupy valuable space which normally should be occupied by ready-to-lay pullets. These surplus cock birds will also eat away cereals, thus costing you almost a rupee a cockerel every month on feeding cost alone.

For breeding on your farm, all you need is one or two males for each pen of 15 to 20 hens. Better sell away all the rest.

Normally, you hatch eggs from September to March. Hence, by July-August you will have the problem of the extra cockerels on your hands.

In pure breeds like Leghorns, sexing (finding out the sex of the bird) is easy at two or three weeks, and it is easy to separate the males from females. In birds like Rhodes, it is difficult to find out the sex till eight weeks or more; because such characters as comb and wattle, neck and tail feathers are not very much developed during the breeding period. In the West, experienced breeders are able to sex the chickens early enough with 90 to 95 per cent accuracy.

POULTRY POINTERS

In Great Britain, Leghorn cockerels are sold at a very early stage. It is no use keeping them long as the meat quality in them goes down with age. In heavy breeds, it is better to separate the sexes at eight weeks and sell the males at 18 weeks.

Sexing is possible even with day-old chicks by following the Japanese method or by suitable cross-breeding. The cockerels are then killed or reared and fattened for the table. In case of heavy breeds like New Hampshire or Rock culled or unwanted male chickens fetch a good price.

Most poultry farmers in our country run males and females together till the sexes can be distinguished, when they separate them out. Experienced breeders elsewhere make good money (even 100 rupees a cock) by selling stock cockerels. However, our poultry farmers cannot expect to get such prices, as no one specializes in pedigree breeding. It is also true that only a few birds come up to the physical standards required in a good breeding cock.

It is good to cull out cockerels from time to time, if you are interested in raising breeding cocks for use or for sale, till finally you are left with the best and most suitable ones.

There is a good demand for breeding cocks in the different parts of the country for improving flocks. But you should try to raise the very best, so that you build up a reputation as a supplier of only the best. Once you do that, orders will come to you in hundreds.

Another way to dispose of cockerels is to freeze or can them. Farmers in the West eat and sell what they can, and can what they cannot. However, this is yet to be taken up in our country.

NEVER pack eggs with their small end up. If you do so, the air shell will be disturbed and the egg yolk will get displaced inside.

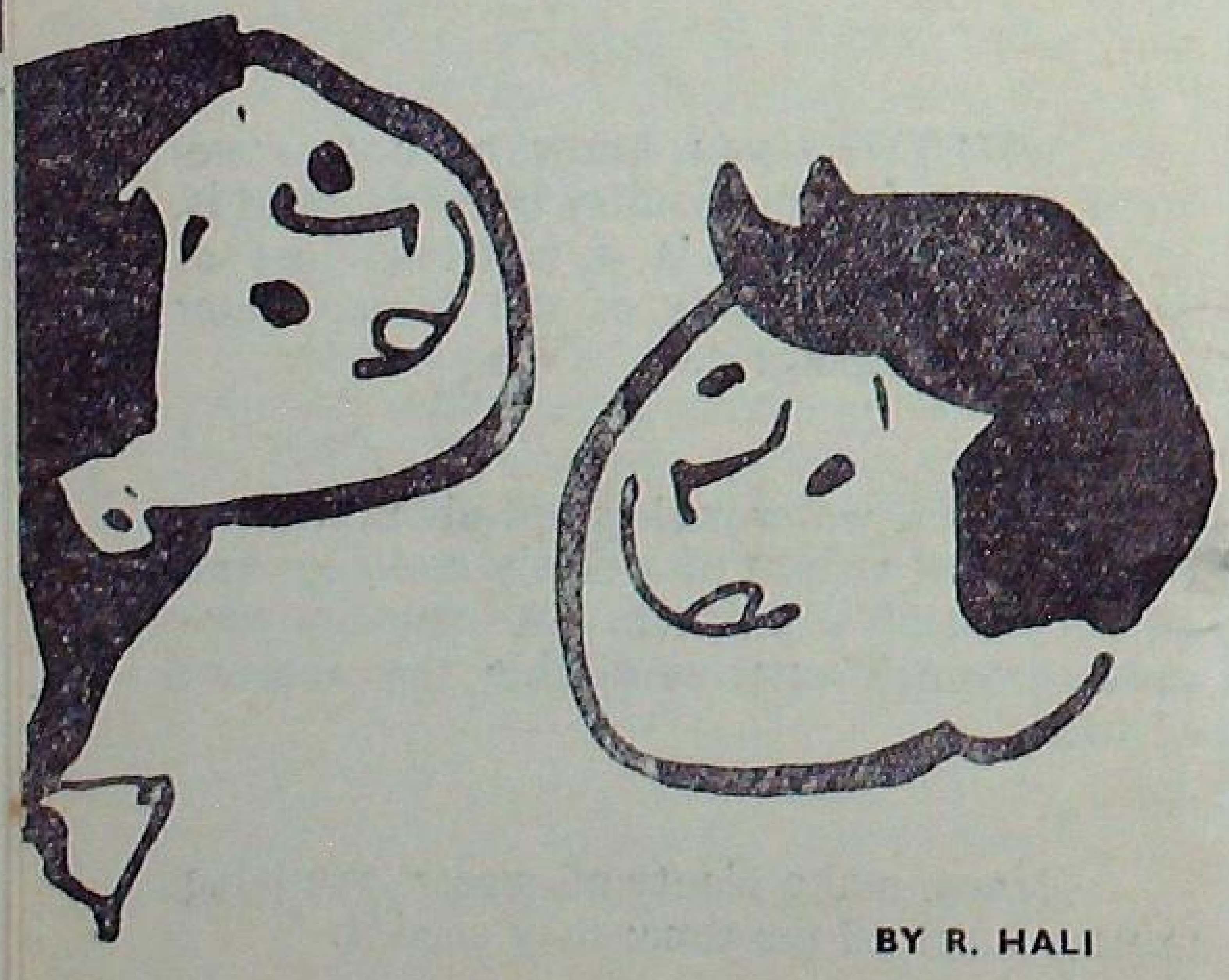
AS THIN-SHELLED eggs are more liable to break during transit, are more likely to become infected with diseases, and also do not keep as well as the normal ones, try to produce eggs with good shell. To do so, provide your birds with limestone-grit or cut oyster shell.

WHETHER you know or not, water is as important to poultry birds as food is, or even more. There is a constant loss of moisture from the body of the birds; water is needed to replace it.

Besides, water makes up about 66 per cent of the weight of a newly-laid egg and 60 per cent of a chicken. A chicken consumes as much water as double the amount of food.

Hence, make plenty of water available to your birds all the time; they need it.

BANANA FIGS ARE 'SWEETER THAN HONEY'



BY R. HALI

HOUSEWIVES of central Travancore in Kerala usher in the New Year by preparing figs from *Nendran* bananas.

These figs, which they say are 'sweeter than honey,' are popular all over Kerala, as much as *Nendran* variety of banana itself. The figs enable the housewives to prepare many sweet dishes that are well relished by all.

Preparing figs from bananas does not cost anything; all that is needed is a good stock of patience.

Here are tips for preparing banana figs in a neat and clean way.

- Select only fully-ripened fruits. Cut the fingers from the bunches when black scars appear on the yellow skin of the fruit.
- Raise a small *pandal* in the open with a few sticks, and spread a few coconut leaves or a mat on its top.
- Arrange the ripe fruits on the mat by 10 in the morning, and collect them back in a basket by 4 in the evening.
- Follow this procedure for a week when you will find the yellow skin turning dark black. Do not allow the juice inside the skin to flow out. Continue the drying in the hot sun for another week.
- By the end of the second week, the juice would have disappeared. This is the time to peel off one half of the skin. Five days later, remove the other half too. Continue drying without fail every day.
- Forty five days of continuous sun-drying will give you fine banana figs.

If kept in well dried china clay jars, the figs will remain good for more than a year.

Just the TOYS you can make at home

By MINAXI MULEY

CHILDREN love to play with toys. It is cheaper to make those toys at home than buy them from the bazaar. You will feel proud that you made them—and if they are not as symmetrical in shape as you wanted them to be, it does not matter at all. It is the colour that fascinates.

You can make these toys easily at home.

A REEL TRAIN

Materials :

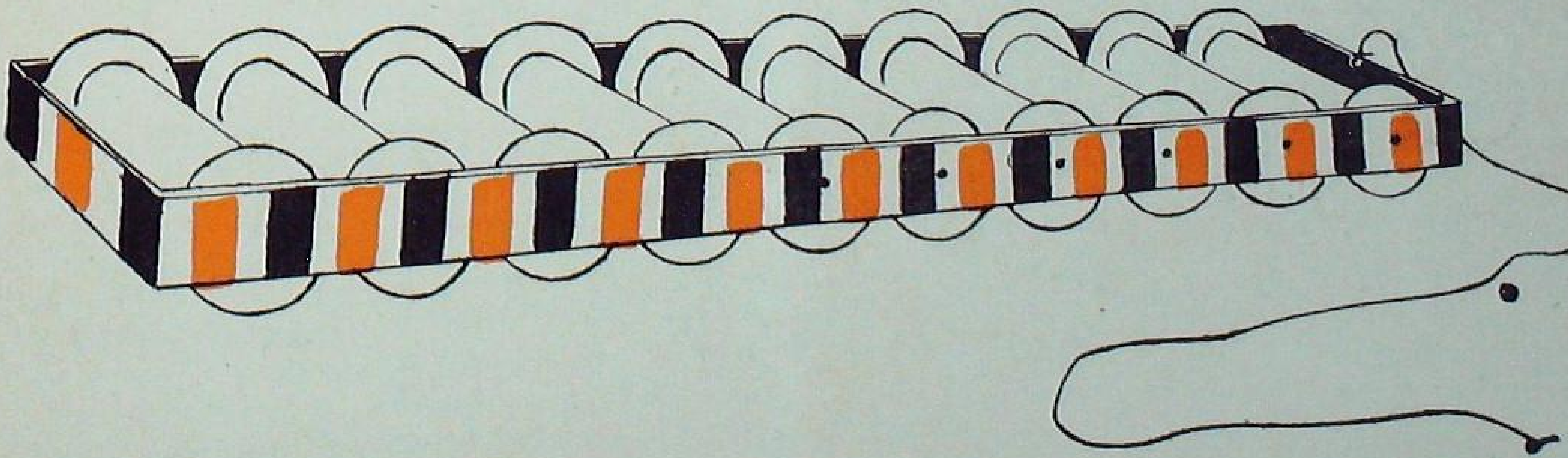
Reels (10 to 12)

Two wooden planks—12 or 15 inches in length and 3/4th of the diameter of the reel in breadth.

Nails

Method :

Keep the two wooden planks in such a way that the reesl fit into the nails put across and are able to move freely. Then fit two small wooden pieces on either sdie of the train. Colour the various parts and tie a thread on one side. The toy train is now ready to be pulled along.



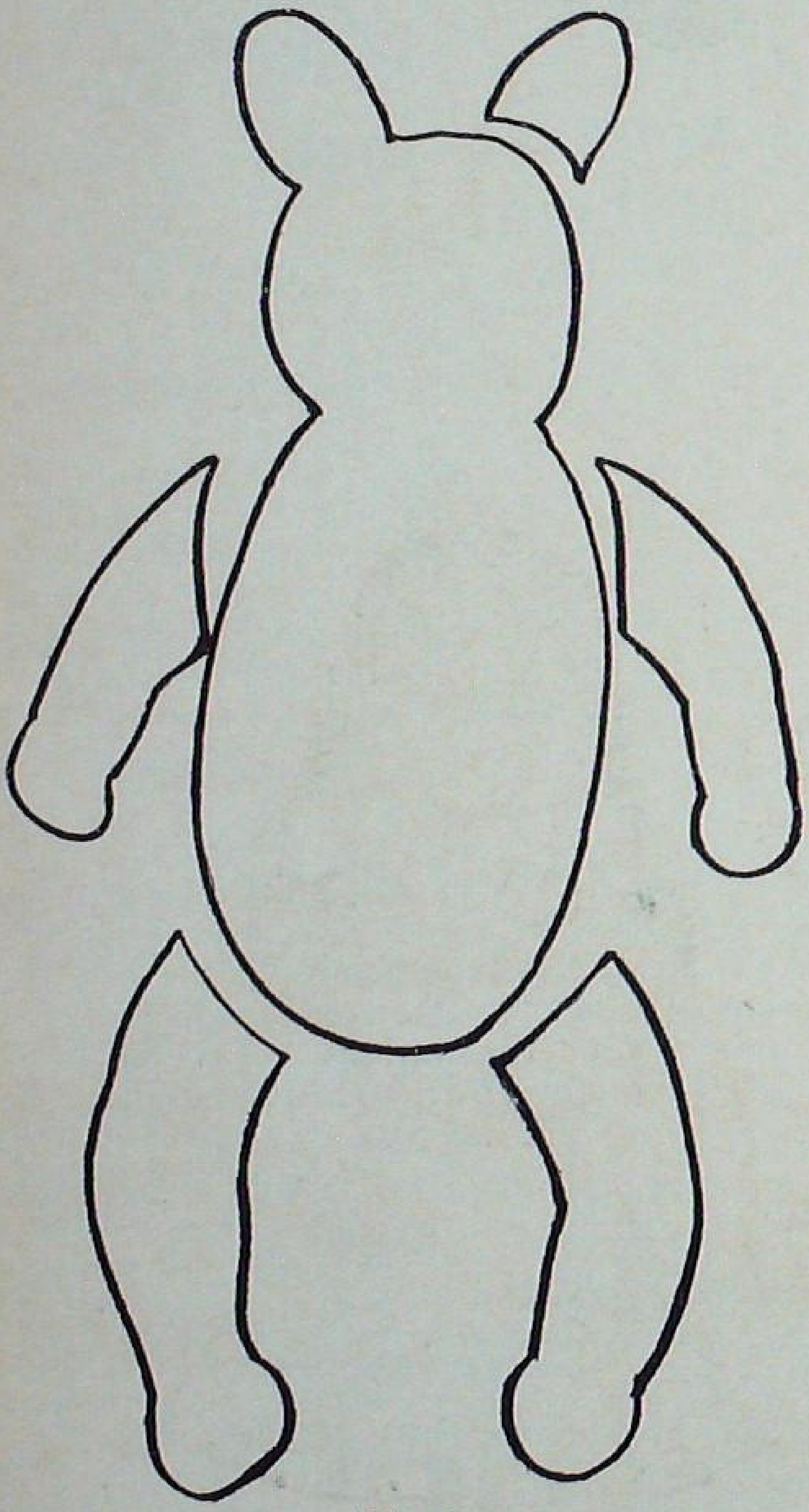
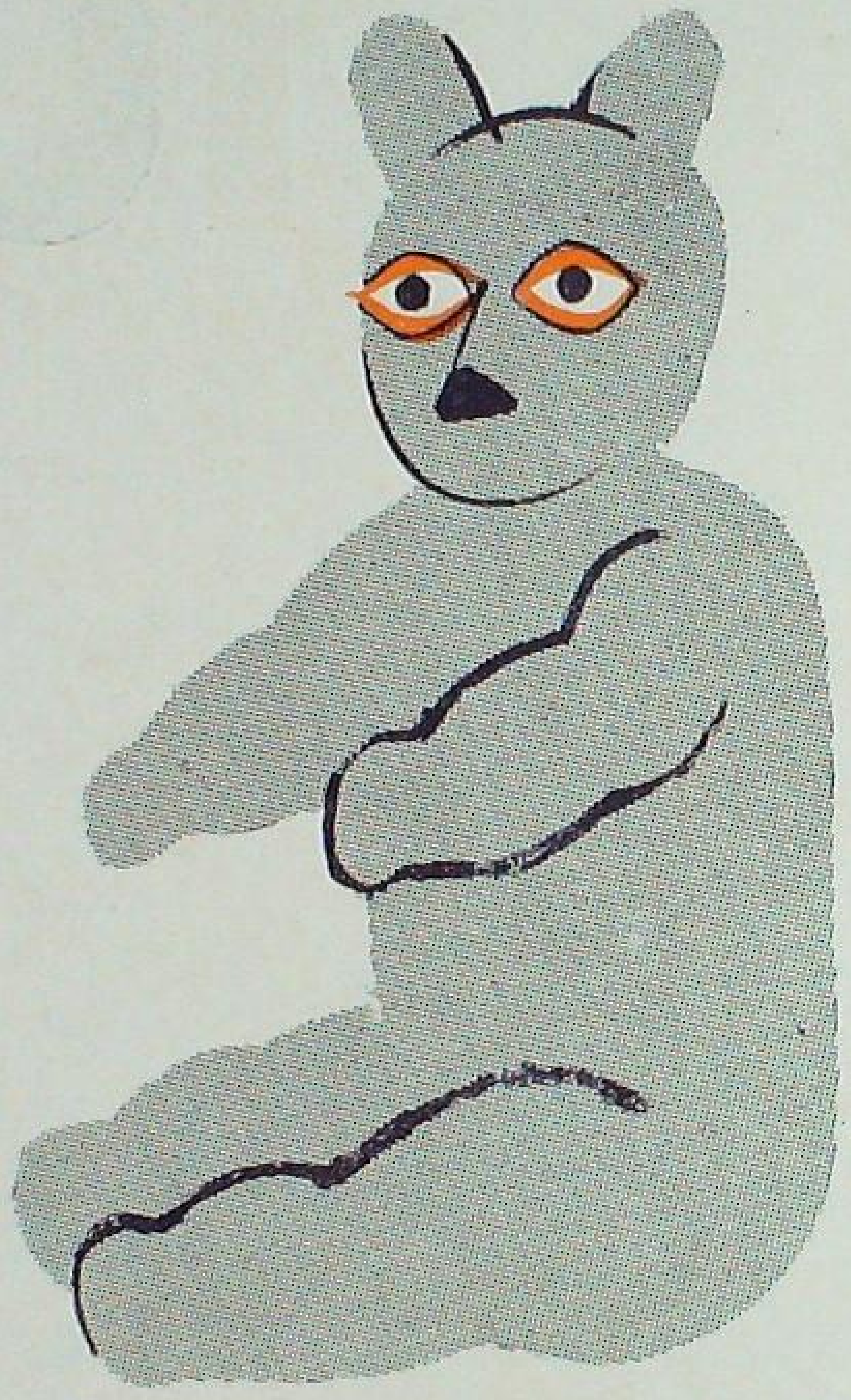


Fig. 1



Materials :

A piece of cloth
Cotton
A needle and thread
Cardboard
Scissors

Method :

Look at the figure 1. Draw the figure on the cardboard. Cut out the outline on the cardboard Place it on the folded cloth and cut the same figure on it. Stitch the sides. Stuff it with cotton Stitch the different parts on the body. Colour as in the picture. Hand it over to your child now.

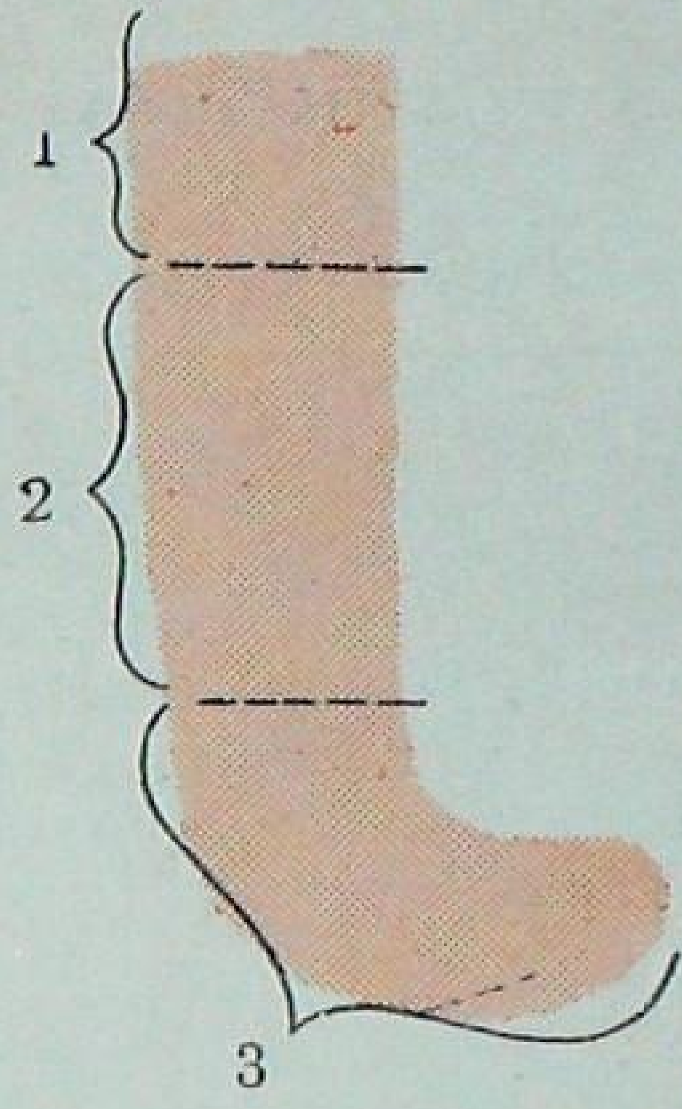
A DOLL FROM A SOCK

Materials :

An old sock
A needle and thread
Cotton and rags
A pair of scissors

Method :

Cut the sock as shown in the figure. Stitch part no. 1 on one side and stuff it with the cotton or rags. Use it for hands. Follow the same procedure for part no. II. Use this for body and head. Take part no. III and cut it in the middle. Stitch the sides and stuff it with cotton and use it for feet. Draw the eyes, nose, mouth, etc., as shown.



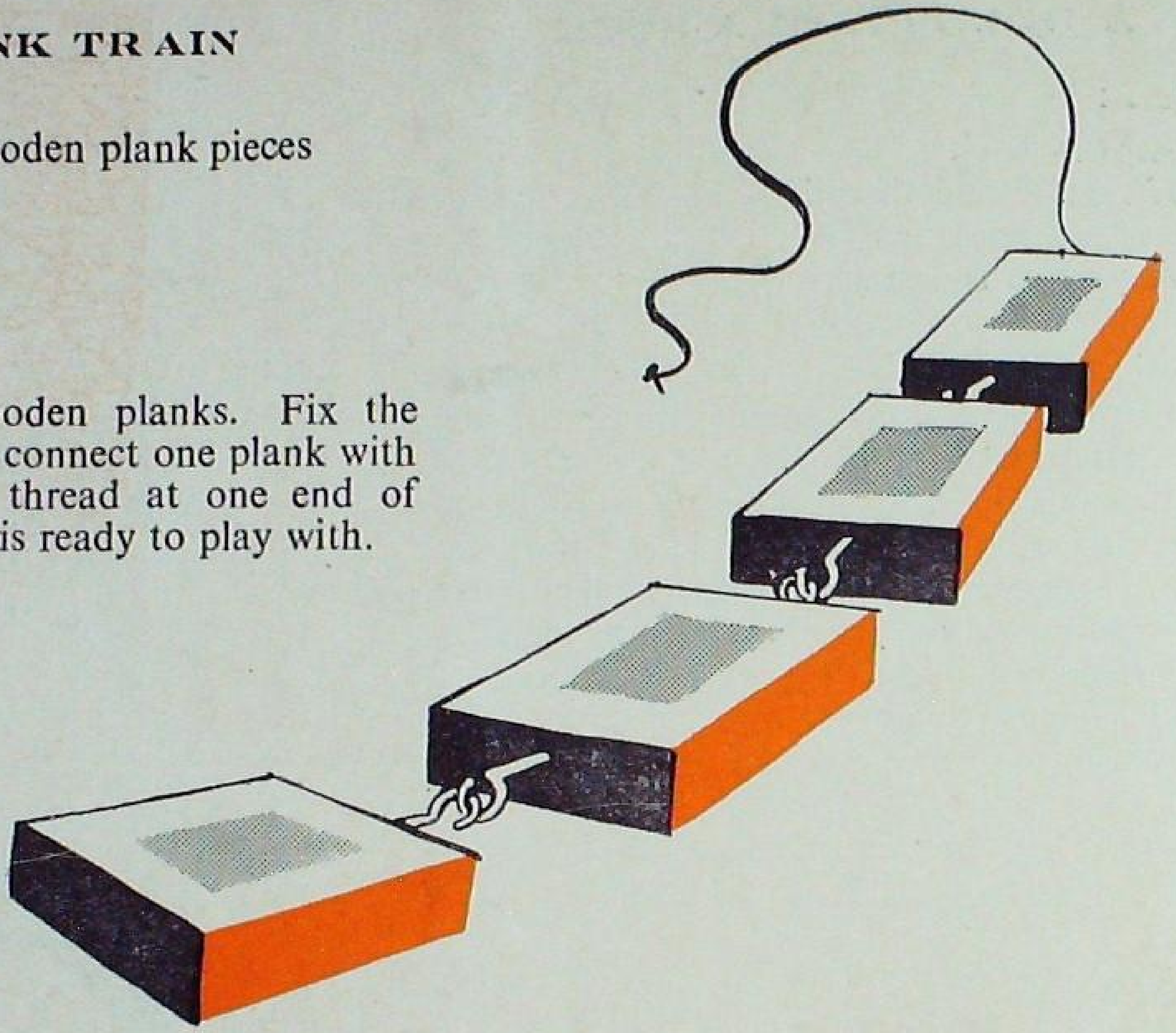
A PLANK TRAIN

Materials :

Rectangular wooden plank pieces
Hooks
Thread
Colours
A brush

Method :

Colour the wooden planks. Fix the hooks on them, and connect one plank with another. Then tie a thread at one end of the train. The train is ready to play with.



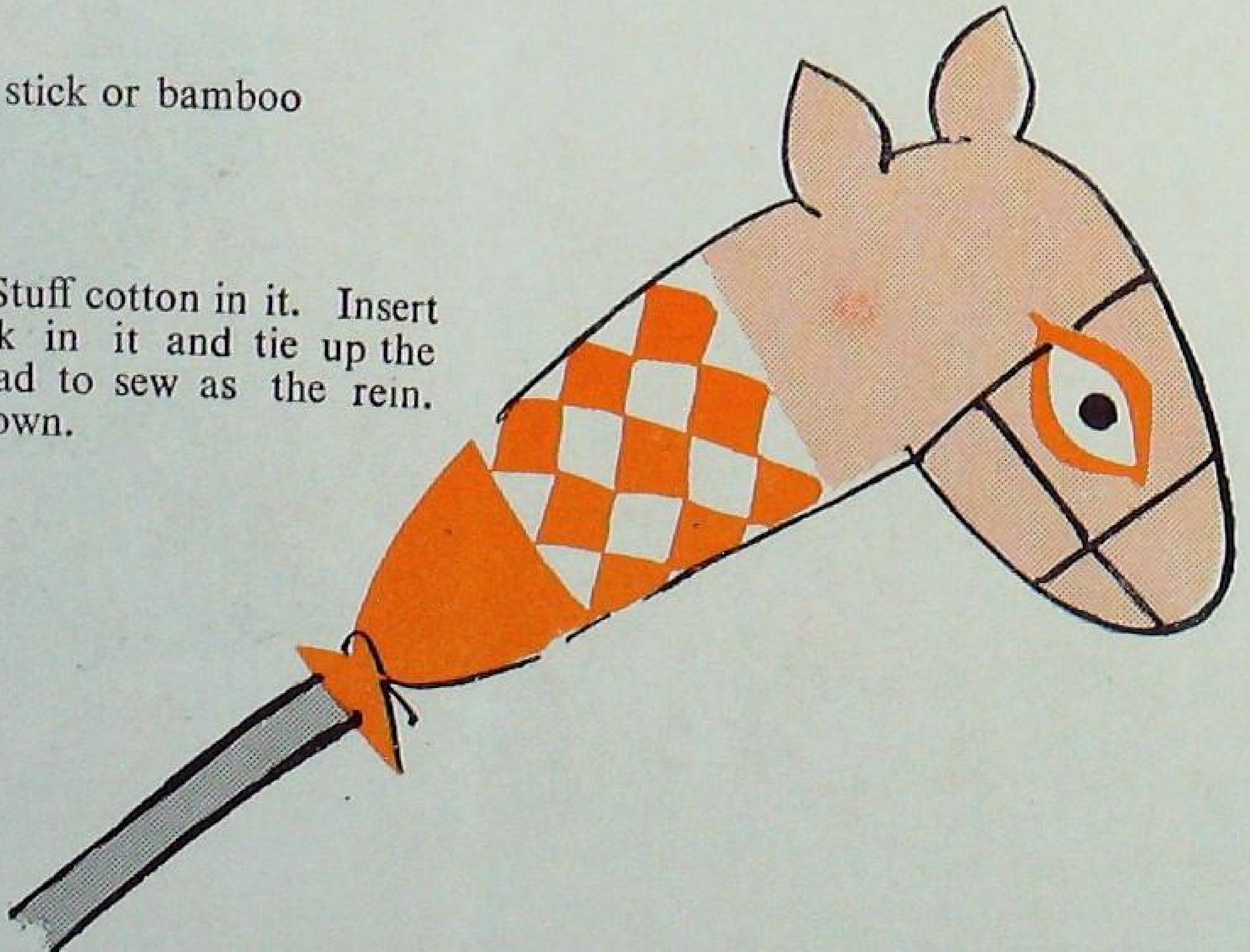
A HORSE

Materials :

An old sock
An old walking stick or bamboo
Thread
Cotton

Method :

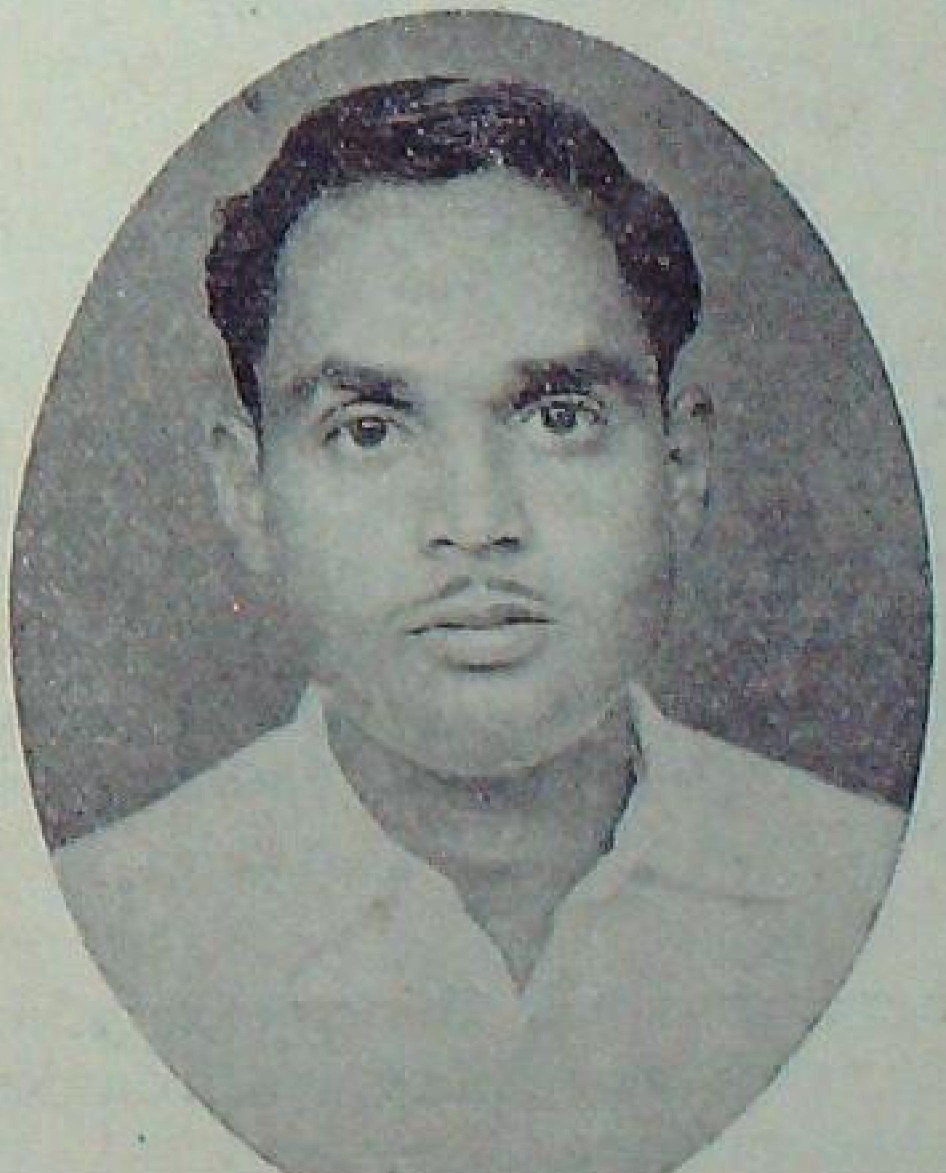
Take a sock. Stuff cotton in it. Insert three inches of stick in it and tie up the opening. Tie a thread to sew as the rein. Paint the horse as shown.



The horse is ready for your baby to ride.

There is nothing to beat these Doodias *when it comes to juicy varieties*

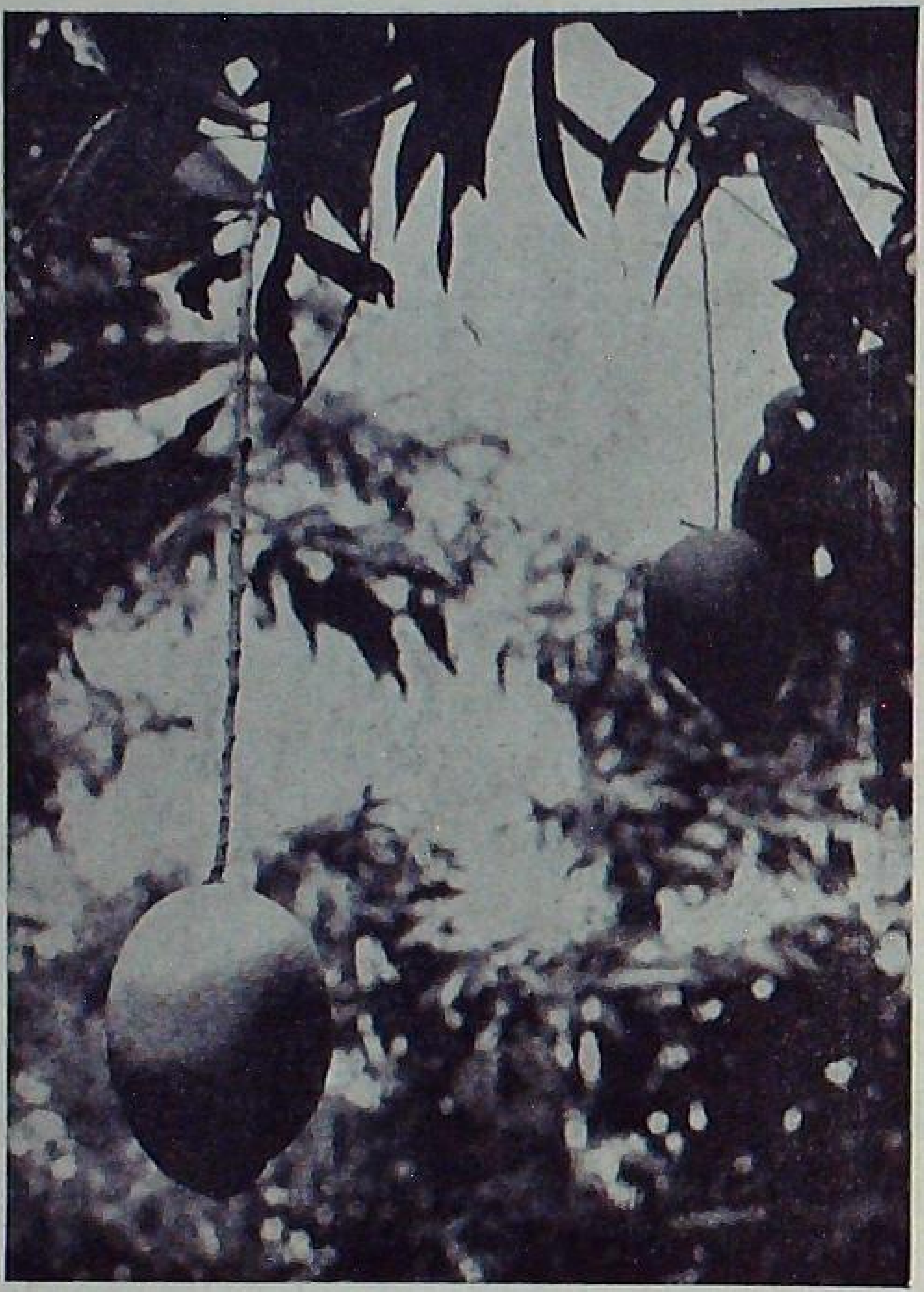
5 things to learn from Yerrapahad



The man who knows how to grow prize-winning mangoes

By L. VENKATARATNAM

YERRAPAHAD in Andhra Pradesh is the place where Shri Shamsunder Reddy has his 648-acre mango garden. And Reddy won the top prizes in All-India Mango Show at Indore for his mangoes.



Alampur Baneshen—*the champion amongst the dessert varieties*

At the Calcutta and Bombay Shows, his exhibit of the *Alampur Baneshan* was declared the best mango in the country. So are his *Doodias*. They are the choicest of the juicy varieties. His other juicy and dessert varieties are also reputed to be the very best.

There are five things every mango-grower can pick up with benefit from Reddy's Yerrapahad garden.

One—The systematic way in which Reddy has his garden laid out. Each variety, each row, each tree seems to have been given attention.

Each variety is planted separately in a block. Trees in a block have been spaced 45 feet apart, considered an ideal spacing. Intercultivation is thus possible even when trees are over 20 years old.

Two—The entire garden gets green manuring. Reddy tractor-ploughs the area, sows *mung* (green gram) at 20 pounds per acre in June each year. He picks the pods once (for seed for next year), and turns down the crop as green manure.

Three In the summer months, he carts tank silt at two truckloads per acre, spreads the same before ploughing the orchard. His soil being red sandy loam, this practice helps keep soil moisture longer.

Trees have improved well with green manuring and application of tank silt.

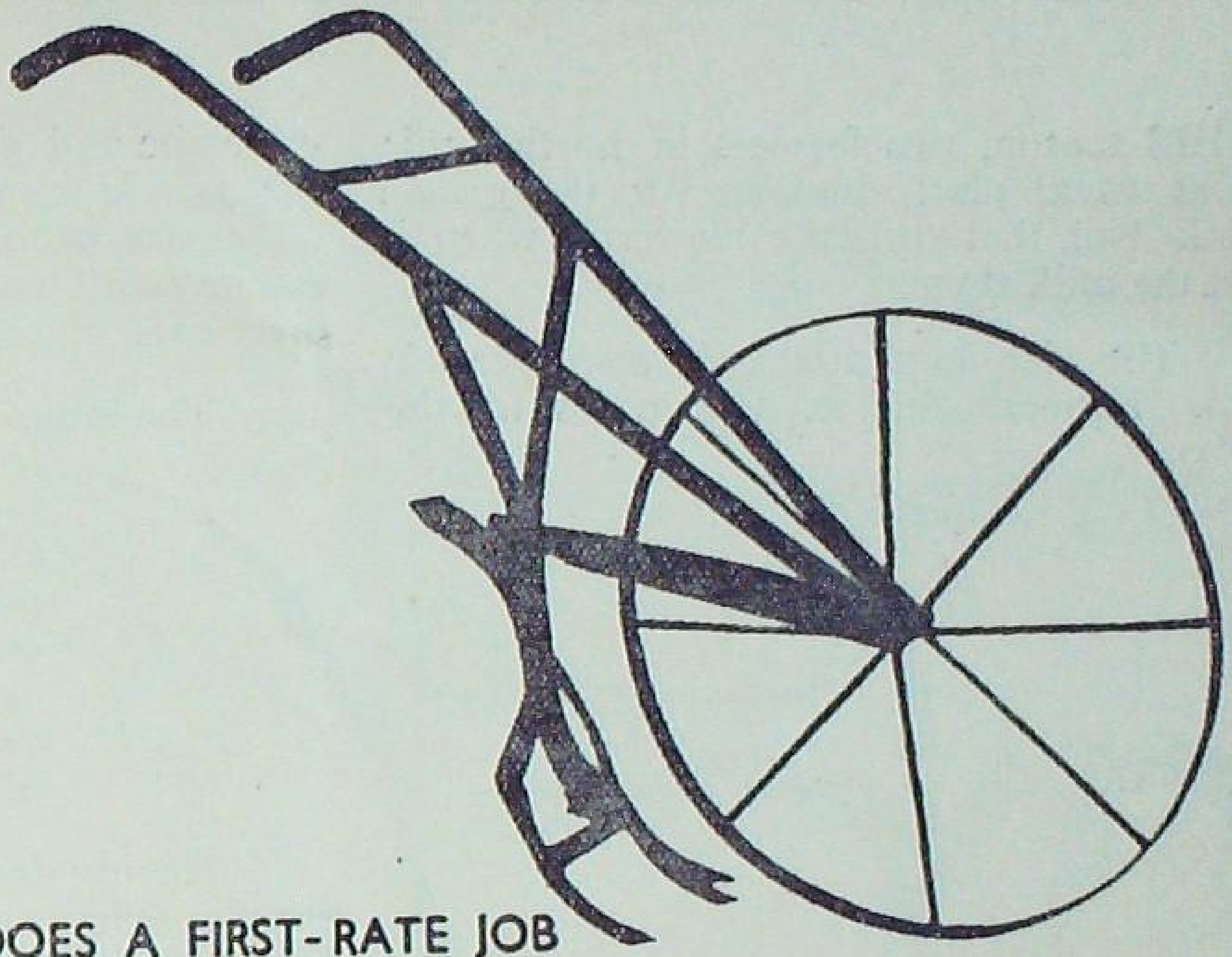
Four—He provides protection to trees from the sun and strong winds. Earlier, he used to find heavy drop of fruits due to strong winds and sunburn on fruits exposed to the sun on the western side. Hence, he took up a programme of planting Glyricidia and cashewnut around the plantation. There are no irrigation facilities during summer, and he has to fill up gaps every year during the monsoon. But, in spite of this difficulty, he has been able to set up this tree barrier on two sides of the orchard.

Five—*Baneshan* occupies 200 acres of Reddy's orchard, but the *Neelum* and the *Bangalora* or *Totapuri* varieties have not been left out. When choice varieties do not produce bumper crops in certain years, these make up for the loss. There is also *Jehangir*, famed for its flavour and taste. There are the northern *Langra* and *Dasheri* too.

In fact, all the best among mangoes are to be seen at Yerrapahad.

But of all these, *Alampur Baneshan* is the favourite of Reddy. Reason—even in seasons of glut the variety fetches thirty rupees a hundred !

D.N. KHERDEKAR



THE WHEEL HOE DOES A FIRST-RATE JOB

CERTAINLY A MORE THOROUGH JOB THAN
A KHURPI OR A HAND HOE CAN DO

If you are sowing your crops in lines which you should, as a good farmer, you will be finding interculturing, manuring and weeding the crops easier and cheaper.

For interculturing, most farmers still use the traditional *khurpi*. Many use a long-handled hoe which they can work standing up and with much less labour.

A still better and more convenient way would be to use a wheel hoe. Many firms today have put out such hoes, costing from 30 to 50 rupees, in the market. A wheel hoe is available with attachments such as shovels and ridgers.

A simple type wheel hoe has a wheel, a foot or two in diameter in front, with two handles and interculturing shovels attached. You can have one or three shovels attached to the implement. It is so light that you can carry it over your shoulder.

To work it all you have to do is to hold the implement by the handle and push the hoe between the crop rows.

You will find the implement, which is so easy to work, doing a first-rate job of the intercultivation.

You can work this wheel hoe in vegetable plots, kitchen gardens and in potato, chilli and other crops. This implement is also good for intercultivating irrigated wheat.

Your Rice and the Gundhi Bug

THIS season, rice farmers in north India are as usual alert, looking for the *gundhi* (stink) bug, that visits the rice crop when it is in the milk stage.

The rice bug attack in some years is mild. Farmers find a few grains in the ear white and chaffy. But in certain years, the *gundhi* bug shows how it can ruin an entire rice crop, and with it all hopes of even a small harvest. The bug leaves behind erect ears, all empty of grain.

The latter is the type of attack farmers fear most. The bug comes into the field in September-October, when the ears are milky. Both the young and grown-up bugs puncture the developing grain and suck away the milk. Once punctured, the grain does not mature.

Having done its damage, the bug leaves the rice field as the grain becomes ripe and hard, and hides in swampy areas till the dry months are over.

EGG TO BUG

The female rice bug lays eggs in rows of 10 to 20 on the rice leaf. In a week's time, young, wingless bugs come out of these small, brownish eggs. In three weeks, they grow wings and start flying about.

The young bugs feed on the plant juice first and later on the developing grain.

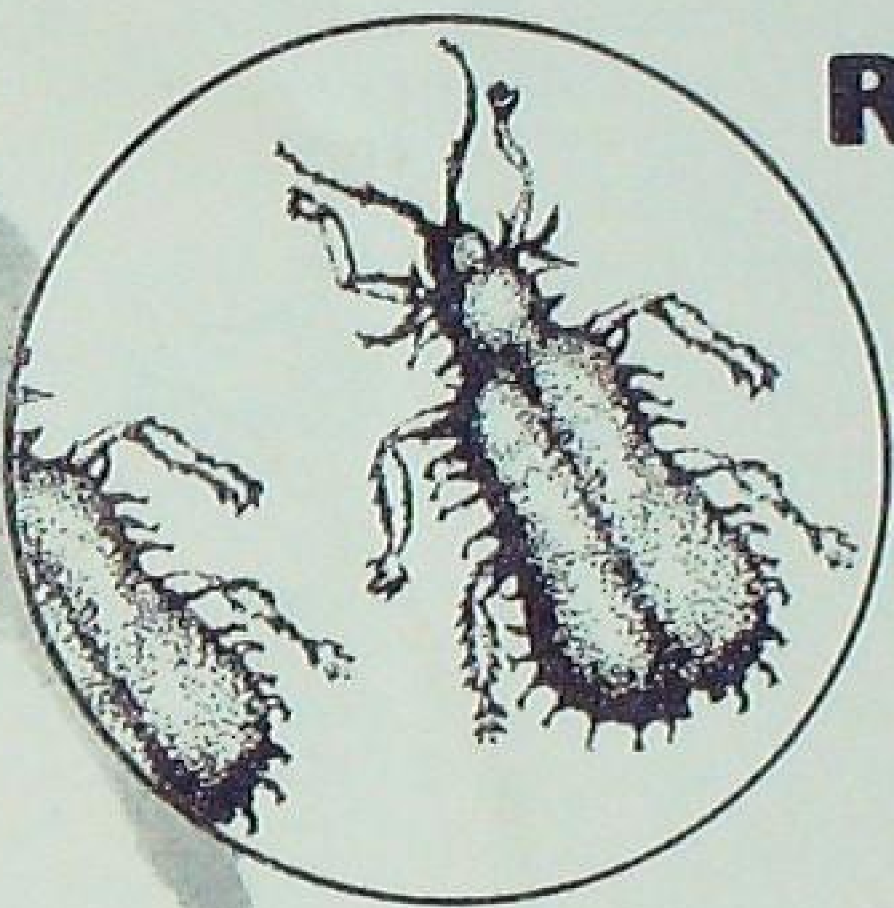
Bugs fly about from field to field at night. They are attracted to light.

CONTROL THE BUG

To control the bug, farmers must dust the rice crop with 5 to 10 per cent BHC at 20 to 25 pounds per acre. You can also control the pest by making a fire near affected fields at night. The bugs will be attracted to the fire and will be burnt.

A wise farmer also keeps the bunds and the surrounding areas of the rice fields free of grass. Thus, he gives no room for the bug to breed.

Farmers can also get the help of the Plant Protection Organization of the State in the control of the *gundhi* bug.



Rice hispa can be a serious pest too

THE rice hispa, a bluish black beetle, can be a serious pest on the paddy crop in many of our rice areas.

Farmers in Andhra Pradesh, Bihar, Assam, Madhya Pradesh, Manipur, Orissa, West Bengal and Kerala know the pest better than those in other States.

Farmers sometimes confuse this pest with another small blue beetle, which also attacks paddy crop. But you can make out the rice hispa easily by the spines it has all over its body.

The rice hispa, like any other beetle, has four stages in its life—the egg, the larva, the pupa and the adult. It spends all of its life time on the paddy plant.

The female beetle lays eggs on the paddy leaves. Wherever an egg is laid in the leaf there will be a white spot seen around it.

In about five days, a small whitish or yellowish larva hatches out. It hides inside the tissues of the leaves where it goes on feeding. As it eats away the green portion of the leaf tissue a big yellow patch is formed on the leaf. Hold such a leaf against light and you will see a larva feeding inside.

When the larva has eaten away the leaf to its full, it turns into a brown pupa. In another four days, the full-grown beetle comes out. The beetle also feeds on and damages the leaves, beginning with the leaf tips. Wherever the beetle has eaten, leaves show narrow white lines. Thus, the patches or blisters and white lines show that the larva or the grown-up beetles are at work.

A rice hispa-attacked crop shows a scorched up appearance. Where the attack is heavy, before transplanting clip the leaf tips and destroy them. This will bring down the pest.

As the crop grows older, the beetle takes shelter in the grasses and in weeds on the field bunds. Hence, destroy all such grasses and weeds from the field and the bund.

You can also use insecticides to get rid of the hispa. Dust five per cent BHC at the rate of about 20 pounds per acre. Ask your Gram Sevak to help you get the chemical you need; and don't let the rice hispa damage your rice crop.

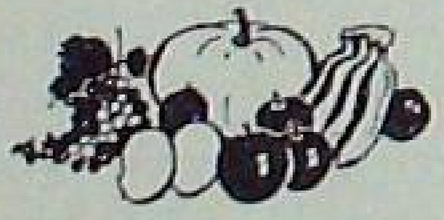
LEAFLETS
FOR PROGRESSIVE FARMERS

FARMING

Treating seed before sowing
Protect your soil
Better implements for a better rice crop
How to treat paddy seed
Better level and bund your field
Raise a better barley crop
Getting good gram yields
The way to higher wheat yields
Late blight of potatoes
How to make silage
Choose your irrigation method
Better grow berseem
How to make paddy straw a better cattle feed
Grow maize the improved way
Five fodder grasses that your can grow

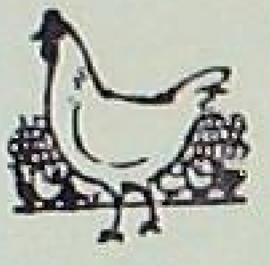
MANURES AND FERTILIZERS

Compost is easy to prepare
Green manuring
How to use fertilizers
Facts about fertilizers
Water hyacinth gives a good compost
Giant Hemp is a good green manure crop



HORTICULTURE

Papaya is easy to grow
Drumstick, the year-round vegetable
Growing grapes in South India
Rabi vegetables—grow them this way
How to grow paying pineapples



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Save your fowls from tick fever
Fighting fowl pox in poultry
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Watch out for pullorum
Culling poultry for profit
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Your chickens and infectious coryza
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NITROGEN

THAT RAPE AND MUSTARD NEED

APPLYING nitrogenous fertilizers is one of the surest and the quickest ways of getting high returns from crops. This is true of rape and mustard also.

To find out the amount of nitrogen that can be applied with profit, experiments on *sarson*, *rai* and *torai* were carried out at the departmental farms in, as well as on farmers' fields, Punjab. The selected sites were true representatives of the regions where these crops are generally grown.

In the experiments, the crop was given various doses of nitrogen. Among these, a dose of 30 pounds of nitrogen proved to be the most economical, both under *barani* as well as irrigated conditions.

Again, the fertilizer was found to benefit the crop better when it was drilled before sowing than when applied at sowing, which farmers in the Punjab generally do. They mix the fertilizer and seed, and then sow. This way, the fertilizer comes in direct contact with the seed, and whenever the concentration is high, there is poor germination which leads to a poor stand of crop and ultimately a low yield.

To avoid direct contact, experiments indicate that the fertilizer should be drilled with the last ploughing the farmers give to prepare their lands.

As then, the nitrogen will become easily available to the growing crop and thus will lead to increased yields.

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HOEING WHEAT WILL END POHLI

By A.K. DUTT, L.V. RATNAM and OM PRAKASH

WEEDS, hardy and stubborn, come up year after year, in millions of acres of our wheat land and compete with wheat for food and moisture, thereby reducing the yield. The farmer, often doing what he can to remove them during preparation of the field and then with a *khurpi*, stands by helpless, watching them spring up everywhere.

Important among these weeds are *pohli*, *jharberi*, *bathua* and *pyazi*. As in many of the wheat areas, the *pohli* is the worst among these in the villages in the Delhi area too.

Delhi villagers, however, have seen how well they can get rid of these weeds by using 2, 4-D. It costs them about Rs. 30 in all, in men and materials, to treat an acre of field. But they find that they cannot use 2, 4-D in all places. In north India, wheat is commonly sown mixed with mustard, and 2, 4-D damages mustard if sprayed on the crop. There are other difficulties such as lack of spraying equipment

or water for spraying, and transport facilities of the equipment from village to the weed-infested field which make farmers hesitate in using this chemical.

Farmers in Sultanpur village in the Mehrauli Block of Delhi found, last *rabi*, an easier solution to this *pohli* problem. For the first time, they intercultured their wheat fields. This they could do because of their being given a new interculturing implement, the Sharma hoe. The farmers liked this hoe, for which they had found good use in their vegetable plots, and went and bought quite a number of hoes. When they worked the hoe in the wheat fields, they found that it needed only one-sixth of the labour needed for working with the *khurpi*, and that even young members of the family could use it with ease.

They intercultured the wheat fields when the crop was six weeks old. They found that working this hoe for interculture had put down *pohli* and the other weeds !

When wheat was harvested, the effect of the hoeing was seen better : a weed-free field left behind ! Compared to the fields which were not intercultured, it was very impressive. At last they knew how to put down the *pohli*.

Weeds when counted in the intercultured fields and non-intercultured fields gave a more clear picture of how hoeing could have the upper hand over weeds. While the number of *pohli* plants in the field which was not hoed varied from 3,688 to 7,515, in the hoed fields the number varied between 24 and 289 !

Even the children find it easy to work with Sharma hoe

Hoeing the fields thus not only keeps down *pohli*, but also prevents the weed from forming seed and thus multiplying itself. A *pohli*-free and weed-free wheat also means a better wheat yield.

The Sultanpur experience has a lesson for other wheat farmers. They must make interculturing the wheat a 'must.' If all farmers in a village take to interculturing their fields, the *pohli* problem will be a thing of the past.

TYPE 126

A New Linseed For Uttar Pradesh

A new improved linseed variety is being recommended for growing in north eastern parts of Uttar Pradesh.

Type 126, the new variety, has many good points to offer to the farmers. It yields high, as much as 800 pounds of seed per acre, and has 41.4 per cent oil content. The variety is rust resistant too.

The seed of *Type 126*, are bold and brown in colour. It doesn't take more than 140 to 145 days to mature.

Such a variety can be grown on almost all types of soils, excepting the sandy and usar types.

Type 126 is suitable for sowing in mid-October. It does well when manured with four cartloads of farmyard manure (100 pounds of ammonium sulphate or one maund of castor cake can also be applied instead).

Protection of crops against pests and diseases is one of the ten golden rules followed by Sakra and Narora farmers

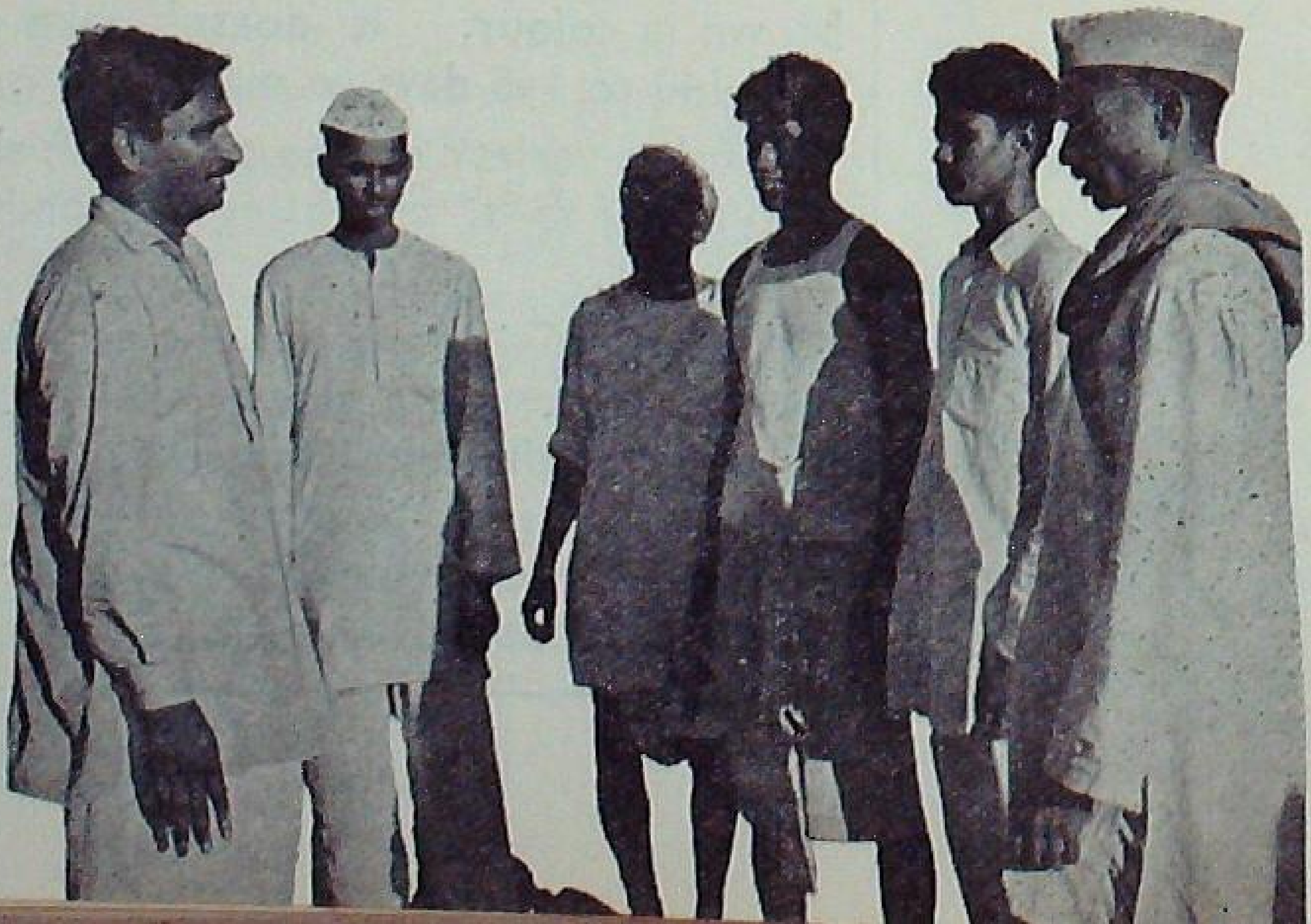
THE seed of what may well turn out to be a new national movement for the increased production of farm crops was recently sown by farmers in a tiny village in Uttar Pradesh.

Last *rabi*, without any publicity, the *gaon sabha* of this village, Arhera, near Fatehpur Sikri (Agra), threw a challenge to all the 72,424 villages in Uttar Pradesh to produce 35 maunds of wheat per acre. The only way this challenge was publicised was through simple but well-worked posters.

The idea being new, no one took up the challenge, but Arhera showed the seriousness with which it had thrown the challenge, by going into an intensive farm activity, the like of which is rarely seen in any part of the country. The village itself exceeded the target it had kept before itself by producing, on an average, almost 39 maunds of wheat per acre.

A NEW CHALLENGE IN FOOD PRODUCTION

FARMERS TAKE THE LEAD



The Uttar Pradesh Government, which wanted to find out how the village had fared, sent their Chief Statistician for the purpose. The Chief Statistician found, through scientific assessment, that the maximum and minimum wheat yields in the village were 59.31 maunds and 24.25 maunds, respectively.

Happy with its achievement, Arhera has now thrown a challenge to all the villages in India to produce on an average 40 maunds of wheat per acre during the coming *rabi* season. Inspired by the Arhera's example, Sirsa, another village in the same Block has thrown a similar challenge to all Village Level Workers' circles of the State.

This challenge has been followed by the *gaon sabha* of Tejpur Nagaria which has thrown another challenge to all villages in Uttar Pradesh to produce 400 maunds of potato per acre.

FOR OTHER CROPS TOO

Encouraged by the spirit with which these challanges were thrown by the villages, there have been more challanges from various *gaon sabhas* of the State pertaining to the production of crops during the current *kharif* season on a higher level.

A challange for the production of 25 maunds of cotton per acre came from the *gaon sabha* of Mundai Prahlad Nagar (Etah district). *Pradhan* Nathi Singh threw a challenge to produce 30 maunds of cotton, and this individual challenge has been taken up by Shriman Narain Agarwal, *Pradhan* of the Raya *gaon sabha* in Mathura district. Similar is the challenge by the *gaon sabha* of Hayatpur Mandi (Etah) sent to all the *Pradhans* of the State *gaon sabhas*. The challenge is to produce 30 maunds of cotton an acre.

A challenge for producing 40 maunds of *kharif* paddy per acre has been given by the *gaon sabha* of Musa Kund in Etah District. This has been accepted by the *gaon sabhas* of Baraura and Usuf Nagar (Lucknow) which have determined to produce an average yield of 42 maunds of paddy per acre this *kharif* season.

The latest of the challenges comes from Sakra and Narora *gaon sabhas*. These will produce an average of 48 maunds of *kharif* paddy and 36 maunds of *bajra* per acre. They have also challenged any other village to produce more than these average yields.

IT IS THE PEOPLE'S MOVEMENT

The interesting feature of this activity is that it is a people's movement, with its roots deep down in the village soil. Each village which throws a challenge takes it upon itself collectively to beat the target as a prestige issue and works like one family. For instance, it was reported from Mundai Prahlad Nagar that a regular ceremony, symbolic of a challenge thrown in wrestling matches, was performed with *havans* and *kirtans* and a vow was taken by each villager to produce a minimum of 25 maunds of cotton per acre. Once the challenge was posted on the walls in various places in the village, the whole village started working with the kowledge that it was not the honour of an individual, but of the whole of village, that was at stake.

The method employed for raising the wheat production to meet the challenge last year was the same as is being employed this year by Arhera villagers.

HOW THEY DID IT

They ploughed the land a number of times from mid-October to mid-November, most of the fields receiving about 11 ploughings. All the fields received a basal dressing of compost and farmyard manure at the rate of 80 to 100 maunds per acre. On an

average, a field received about 24 pounds of nitrogen and 10 pounds of phosphate.

A remarkable feature of the plot which gave the highest per acre yield of 59.31 maunds was that night soil was used to fertilize it.

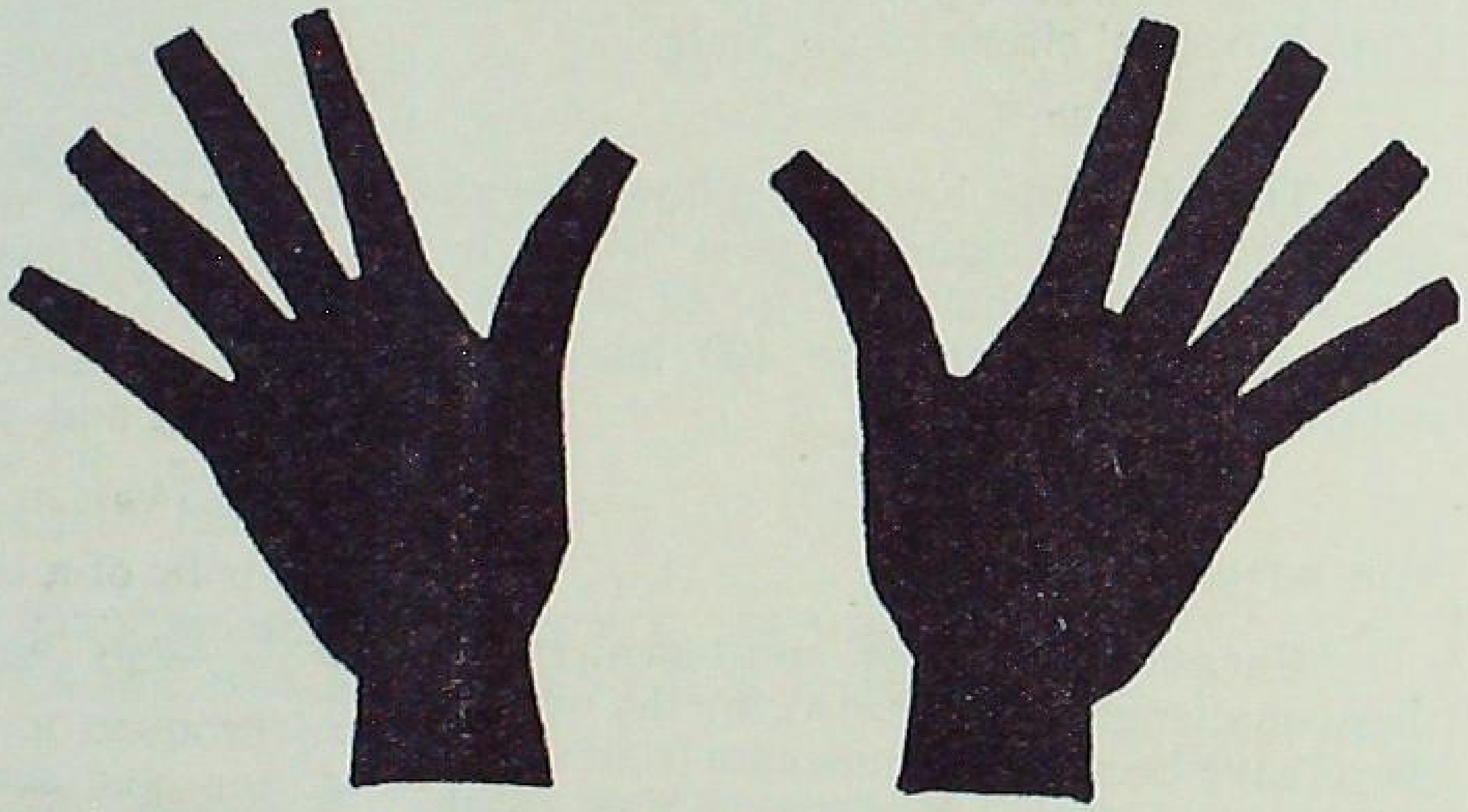
All the fields were sown with improved variety of seed; some farmers followed the method of dibbling which was not resorted to earlier in the village. Where the fields were dibbled, the seed-rate was 8 seers per acre and where the seed was sown behind the plough the seed-rate was 30 pounds per acre.

Interculturing also formed one of the major operations, whereas this was not being done before.

TEN GOLDEN RULES

For rice, the major *kharif* crop, there is a challenge of 48 maunds per acre from Sakra and Narora villages jointly in Etah district to villages all over India. These villages have adopted ten simple rules for reaping a good harvest. These rules are a watch-word with the farmers of the area, so much so that one notices at each crossing and important spot a huge iron pair of hands with the ten fingers spread out to show these ten rules.

1. The Japanese method of paddy cultivation.
2. Line sowing, manuring and top dressing, weeding and interculture of paddy, cotton and other *kharif* crops including sugarcane.
3. Composting and preservation of cattle urine, and plantation of *sada bahar* (*Ipomea carnea*).
4. Green manuring and multiplication of green manure seed.
5. *Mendbandi* or *daulbandi* and contour cultivation.
6. Full utilization of co-operatives for agricultural production.
7. Plantation of trees, and taking to kitchen-gardening.



8. Protection of crops against pests and diseases, including rat control.
9. Summer ploughing.
10. Proper utilization of irrigation water.

THE IDEA SPREADS FAST

This is how crop production challenges started and are progressing—one village throwing a challenge to all others and itself showing by example that increasing crop yields is not an idle boast, but something that can be achieved, if farmers make up their minds. If the movement spreads to the length and breadth of the country, food shortages and low farm incomes can be things of the past.

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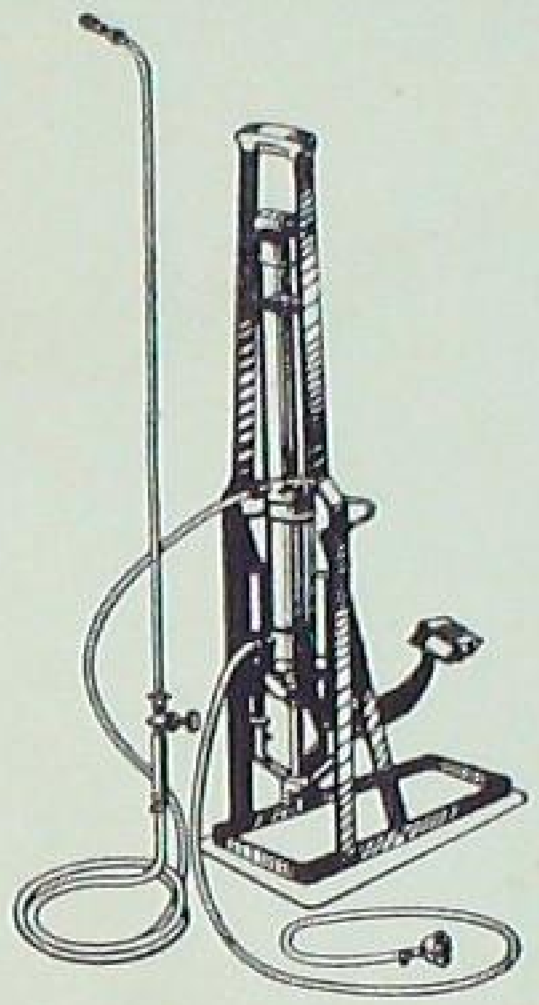

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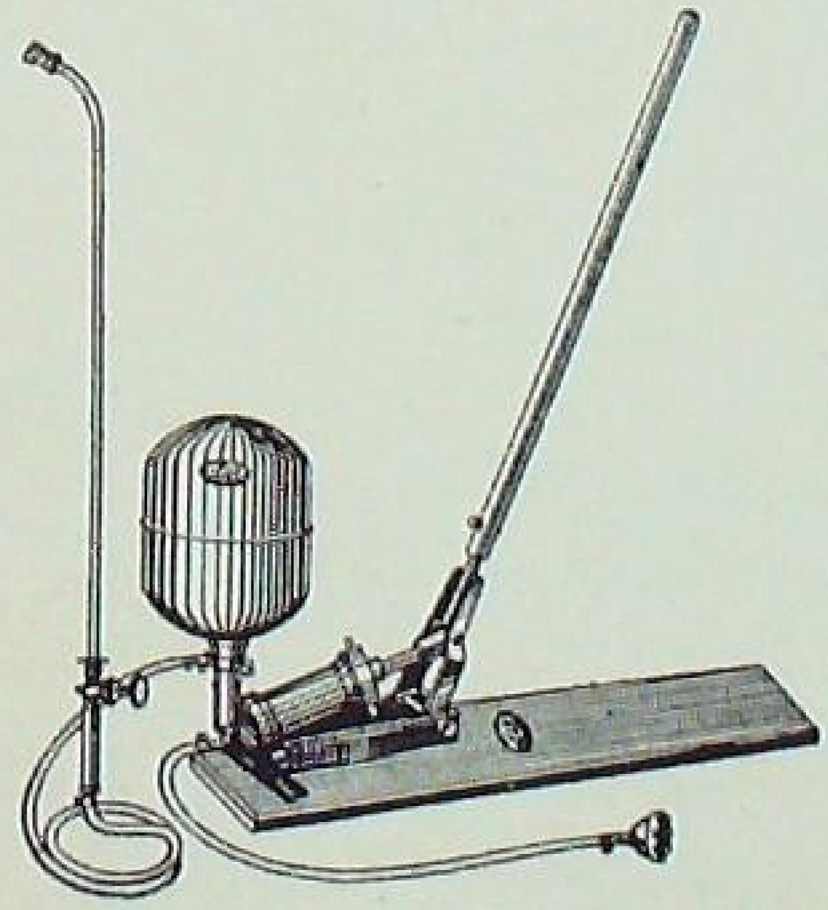

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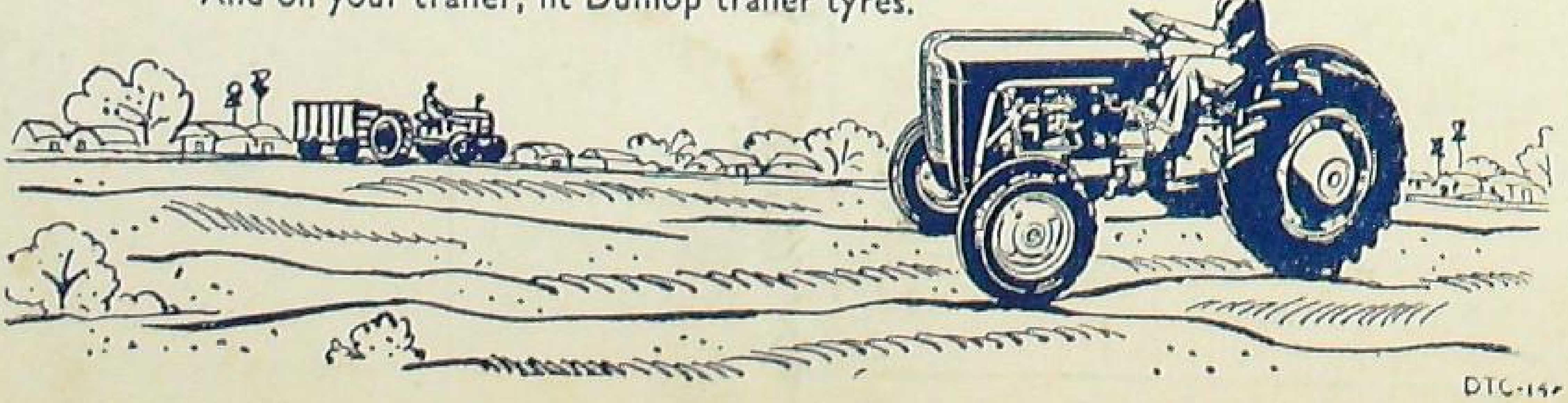

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